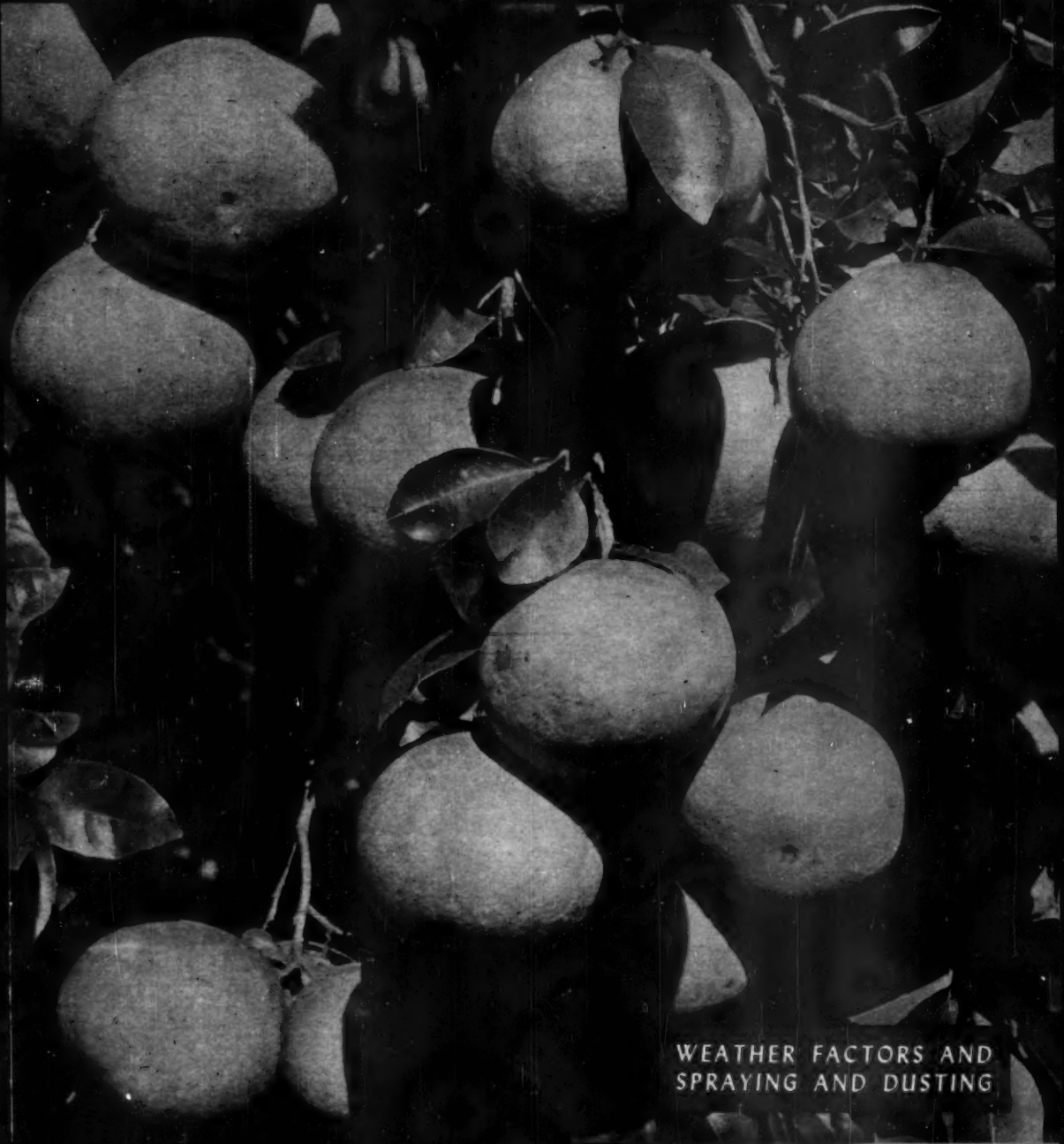


American

FEBRUARY • 1949

FRUIT GROWER



WEATHER FACTORS AND
SPRAYING AND DUSTING

OUTPULLS THEM ALL . . .
Because it takes a CLEAN,
"FULL TRACTION BITE"
Firestone
CHAMPION GROUND GRIP



THE Firestone Champion Ground Grip is the only tractor tire that takes a big, clean, "full traction bite" clear across the tread . . . from shoulder to shoulder and in the center too. That's why it outpulls other tractor tires by such a wide margin.

The Firestone Champion Ground Grip takes a deeper bite because the tread bars are higher, and a bigger bite because the tread bars are longer and there are more inches of contact with the ground. It takes a cleaner bite because the bars are joined at the center and flare outward to permit easy exit for mud and trash.

A look at the Champion Ground Grip tread will show you why this tire outpulls any other tractor tire. Your nearby Firestone Dealer or Store will be glad to put a set of Firestone Champion Ground Grips on your tractor and let you prove them to your own satisfaction.

*Listen to the Voice of Firestone
every Monday evening over NBC*

Copyright, 1949, The Firestone Tire & Rubber Co.

THE **3** RULES FOR
MAXIMUM
TRACTION

- 1 USE FIRESTONE CHAMPION TIRES
- 2 USE FIRESTONE HYDRO-FLATION
- 3 USE ONLY 12 LBS. PRESSURE



"Rain-proof" YOUR FRUIT TREES with Good-rite p.e.p.s.

THE NEW FUNGICIDAL ADHESIVE THAT SHEDS RAIN . . . keeps pesticides on

BBETTER protection for your orchards is easier now. Just add Good-rite p.e.p.s. to your sprays. It's the new fungicidal "sticker" that keeps sprays from washing off trees, even in heavy rains.

Good-rite p.e.p.s. gives better and longer-lasting coverage. In many cases, it makes reduced dosages possible—extra savings for you in work and money.

This new agricultural chemical is basically polyethylene polysulfide. It is processed in a new way which permits the preparation of a non-injurious and remarkably stable product. It has been *proved* in four seasons' tests.

MORE FRUIT—LESS WORK

Good-rite p.e.p.s. helps give you more saleable fruit because of better disease and insect control. It is *highly adhesive* . . . resists heavy rains that wash off ordinary sprays. It is widely compatible with practically all fungicides and insecticides . . . increases their effectiveness. *Non-injurious* to fruit and leaves. *Resistant* to freezing.

Good-rite p.e.p.s. is another B. F. Goodrich Chemical Company development that opens new ways to get better results—at lower cost. Write Dept. AF 2 today for complete information.

DISTRIBUTORS—DEALERS!—Good-rite p.e.p.s. can be an extra money-making addition to your line. It's going over big. Send for full information. Write Dept. AF 2.



NEW . . . EASY-TO-USE "BRICK"
Two heavy-foil-wrapped cartridges in a 4-lb. package. Simply unwrap, crumble, dump on screen and wash in with water. Each cartridge makes 400 gallons.

Report from Du Pont

ON



A DEVELOPMENT OF MAJOR INTEREST TO APPLE GROWERS

New Product Available in Limited Quantities This Year

A major advance in one of the most important operations of good orchard management is rapidly nearing achievement. This is an answer to the problem of applying fertilizer nitrogen more accurately and in the right amounts at the right time.

In the near future orchardists may feed nitrogen to apple trees entirely by spraying it on the foliage right along with the regular pest-control sprays. Thus two jobs—nitrogen fertilization and pest control—can be accomplished in a single operation.

Results from seven years of orchard studies indicate that the use of "spray nitrogen" gives the grower precise control of nitrogen levels in apple trees at all times. Proper control and timing of nitrogen supply are, of course, highly significant factors in influencing the fruit set, size and color.

Two Lines of Research

This remarkable new way of applying nitrogen fertilizer has come from two lines of development. First was the proof that apple leaves could absorb their nitrogen requirements from solutions of certain nitrogen compounds applied as sprays. And

the second was the formulation of a product that would be compatible with pest-control chemicals, would not corrode spray equipment and would not injure the leaves when applied in practical amounts.

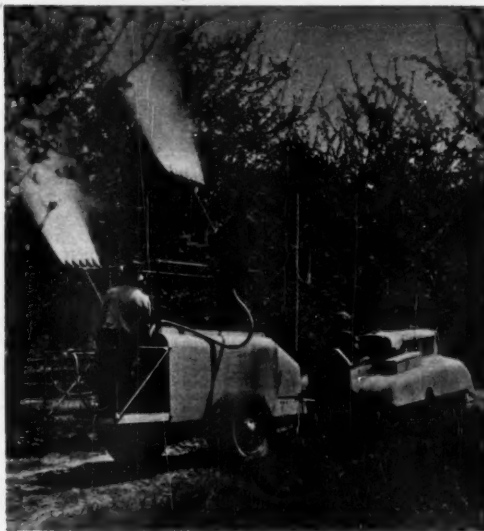
This new procedure now provides a highly flexible nitrogen fertilization program that can be varied exactly in accordance with the tree's needs. And the labor saving aspect is also an important factor.

"NUGREEN"—The New Spray Nitrogen

Tests conducted initially by the New York State Experiment Station and Cornell University showed that nitrogen in the form of urea had outstanding advantages for this use. During the years that their work, as well as similar studies in neighboring states were under way, the Du Pont Company developed a special composition to meet requirements for a satisfactory material. This new product is called "NuGreen" fertilizer compound and contains 43% nitrogen in the form of urea.

"NuGreen" is readily soluble and does not corrode or plug spray nozzles and equipment. It is compatible with all ordinary spray chemicals. And "NuGreen" does not injure apple foliage when used at the recommended concentration of 5 pounds per 100 gallons of solution.

Experience with "NuGreen" has to date been primarily with apple trees, but preliminary results from trials on other fruits, vegetable crops and ornamentals are highly promising. Recommendation for use on these other plants cannot be made until further results are obtained.



Limited Availability This Year: Production facilities for "NuGreen" will be expanded as rapidly as possible so that larger supplies will widen the commercial availability of this newly developed nitrogen compound for apple growers.

"NuGreen" Fertilizer Compound is a product of the Ammonia Department of E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware.



NUGREEN

REG. U.S. PAT. OFF.

**FERTILIZER COMPOUND
SPRAY NITROGEN**

**BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY**



**DEARBORN IMPLEMENTS HELP GET MORE DONE,
EVERY SEASON OF THE YEAR**



SNOW PLOWING—Dearborn Snow Plows are raised, or lowered by Ford Tractor Hydraulic Touch Control. Attached by means of the Dearborn Universal Frame (sold separately).



WOOD CUTTING—Carry the Dearborn Cordwood Saw on the Ford Tractor right to the job, then lower to working position by Ford Hydraulic Touch Control. Belt tightens automatically.



PLOWING—The Ford Tractor is powered to handle the Dearborn two-bottom, 14-inch moldboard plow . . . also disc plows, middlebusters, 2-way plows, furrowers and sub-soilers.



CULTIVATING—You may choose whatever type cultivator you prefer, lift type spring shank, rigid shank and front mounted attachments for either . . . as well as listed crop cultivators.



COMBINING—Whatever the crop you are harvesting, the Dearborn-Wood Bros. Combine can be relied on to cut, thresh and clean efficiently, under both good and bad conditions.



MOWING—Take full advantage of good weather with the Ford Tractor and a Dearborn Mower. The mower shown here can be attached in 8 min. Can mow up to 25 to 35 acres a day.



CORN PICKING—The Ford Tractor and Dearborn-Wood Bros. Corn Picker make a fast, clean-picking, dependable combination. Rows from 30" to 42" easily handled. Extra big husking bed adds to picking capacity.



LOADING—The Dearborn Standard Manure and Material Loader lifts and lowers by Ford Tractor Hydraulic power, carries loads to wherever you want them dumped. Heavy duty model also available.



All over America it's proving itself a YEAR 'ROUND TRACTOR

all 'round performance

Naturally, you first think of a tractor in connection with field work. And, the more you use a Ford Tractor in the fields, for plowing, discing, cultivating and the like, the more respect you have for the way it buckles down to heavy pulling and tough going . . . for the way it "takes the toil out of the soil" and the amount of work it helps you get done in a day.

Here's a tractor that can handle a really tough plowing job and bring new speed and efficiency to other kinds of heavy field work. It's a tractor that will please you with the quality of its work and surprise you with its economy.

all 'round the farm

With a Ford Tractor and the right Dearborn Equipment, you can put power and speed into such jobs as scraping, leveling, loading, ditching, terracing, excavating, digging post holes, sawing wood, or clearing snow.

You can get to and from these jobs in a hurry, lift and lower most Dearborn Implements by a finger touch with Ford Tractor Hydraulic Touch Control and change from one implement to another with astonishing speed.

all year 'round

All of this adds up to the fact that you can keep a Ford Tractor busy for many extra hours in a year . . . hours when it's saving you time and drudgery, instead of sitting in the shed. Ask your nearby Ford Tractor dealer all about all the ways you can use a Ford Tractor, all year 'round.

DEARBORN MOTORS CORPORATION • DETROIT 3, MICHIGAN



LOOK FOR THIS SIGN—It identifies your nearby Ford Tractor dealer. You can depend on him for practical power farming help, for genuine parts and dependable mechanical service. He's a good man to know better.

COPYRIGHT 1941, DEARBORN MOTORS CORPORATION

Ford Farming MEANS LESS WORK . . .
MORE INCOME PER ACRE



MONSANTO'S DDT (Santobane*) is effective against a wide variety of insect pest, including codling moths.

Much less for the bugs

This year, there will be much less fruit for the bugs; much more for you. Because — many fruit growers and orchardists will protect their crops with insecticides formulated with Monsanto agricultural chemicals.

Monsanto has long been a factor in the production of chemicals for insecticides and herbicides. Their manufacture is under step-by-step control to assure a uniformly high degree of biological activity. In addition, Monsanto works closely with commercial firms, State Experiment Stations and Government authorities to determine new and better ways of safeguarding the nation's crops.

As a result of these activities, Monsanto is a recognized source of dependable agricultural chemicals. If you are a user of insecticides and herbicides, consult your formulator. If you are a formulator, consult Monsanto.... Write Monsanto Chemical Company, 1756 South Second Street, St. Louis 4, Missouri. Or, return the coupon if you prefer.

*Reg. U. S. Pat. Off.



MONSANTO'S Tetraethyl Pyrophosphate (Nifos*-T) is widely used to control mites and aphids.



MONSANTO'S para-Dichlorobenzene (Santochlor*) is a highly effective insecticidal chemical for the control of peach-tree borers.



MONSANTO'S PENTACHLOROPHENOL (Santophen* 20) protects grape and hop stakes against rot and insect attack.



MONSANTO'S Parathion (Niran*) checks plum curculio and many other fruit-damaging insects.

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MONSANTO CHEMICAL COMPANY
1756 South Second Street, St. Louis 4, Missouri
Please send information on Monsanto Chemicals for the control of

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Business _____

Address _____

City _____ State _____

SERVING INDUSTRY... WHICH SERVES MANKIND



Farmers Prefer
CHEVROLET
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 HEAVY-DUTY
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Check these Features

Only Chevrolet Heavy-Duty Trucks have them all

Quicker, easier and quieter in operation, Chevrolet's new 4-SPEED SYNCHRO-MESH TRANSMISSION in medium and heavier duty models enables the driver to maintain speed and momentum on grades.

The new SPLINED REAR AXLE HUB CONNECTION, another Chevrolet innovation, assures added strength and greater durability in heavy hauling.

There's all-weather comfort with Chevrolet's famous CAB THAT "BREATHES."* Outside air—heated in cold weather—is drawn in and used air is forced out.

World-famous for economy, Chevrolet's power-packed LOAD-MASTER VALVE-IN-HEAD ENGINE is now even more durable and efficient in operation.

PLUS • The Flexi-Mounted Cab • Uniweld, all-steel cab construction • All-round visibility with rear-corner windows* • New, heavier springs • Full-floating hypoid rear axles in the 3600 series and heavier duty models • Hydovac power brakes on heavy-duty models • Ball-bearing steering • Wide base wheels • Standard cab-to-axle dimensions • Multiple color options.

*Heating and ventilating system and rear-corner windows with deluxe equipment at extra cost.

Look at these reasons why they're the logical choice:

The facts are that Chevrolet Advance-Design heavy-duty trucks have a combination of values that no other trucks offer. There's a rugged style, a big "plus" in power and a payload of features. And more than that, there's 3-WAY THRIFT! Nowhere else will you find this *triple* economy—low cost of operation, low cost of upkeep and the *lowest list prices in the entire truck field.*

CHEVROLET MOTOR DIVISION, General Motors Corporation,
 DETROIT 2, MICHIGAN

CHOOSE CHEVROLET TRUCKS
for Transportation Unlimited!

AMERICAN FRUIT GROWER

for better control of more insects,
use insecticides containing

Thiophos

REG. U.S. PAT. OFF.

PARATHION

developed by American Cyanamid Company

Commercial use of Thiophos insecticides on fruit in 1948 confirmed the outstanding results obtained experimentally in 1947. The following are among the more important destructive insects that are killed easily and economically with Wettable Powders and Dilute Dusts containing Thiophos Parathion:

APHIDS
MITES
THRIPS
BEETLES
RED-BANDED LEAF ROLLER
COTTONY-CUSHION SCALE

ORIENTAL FRUIT MOTH
WOOLLY APPLE APHID
PLUM CURCULIO
PEAR PSYLLA
MEALY BUGS
BUD MOTH

The companies whose trade names appear below supply insecticides made from Thiophos Parathion. Select one of these reliable manufacturers as your source of supply, and discuss with an accredited representative your particular problem. Do the same with Federal and State agricultural experts in your locality.



PARATHION
Zeig Company Inc.
New York, N. Y.

CHIPMAN
PARATHION
Chipman Chemical Co., Inc.
Sound Brook, N. J.

P.A.R.
PARATHION

Easton Industries, Inc.
Fresno, Calif.

Phos Kil
PARATHION
Higgin Chemical Division
Food Machinery Corporation
Middleport, N. Y.

PARADUST
PARATHION
Blattner Chemical Company
San Francisco, Calif.

Dow
PARATHION

The Dow Chemical Company
Midland, Michigan

VAPOPHOS
PARATHION
California Spray
Chemical Corporation
Richmond, Calif.

PENPHOS
PARATHION

Pennsylvania Salt
Manufacturing Company
Philadelphia, Pa.

APHAMITE
PARATHION

The Sherwin-Williams Company
Cleveland 1, Ohio

PARATHION
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Tobacco By-Products
& Chemical Corporation
Richmond, Va.



General Chemical Division
Allied Chemical
& Dye Corporation
New York, N. Y.

MYERS MAKES YOUR SPRAYER!

A FULL-GROWN LINE TO FIT EVERY GROWER'S NEEDS



50 & 35 gpm; 600-800 lbs. pressure



20 & 13 gpm; 600-800 lbs. pressure



7 gpm; 350 lbs. pressure



50 & 35 gpm; 600 lbs. pressure



20 & 13 gpm; 600 lbs. pressure



50 gpm; 70 lbs. pressure



50 & 25 gpm; 600 lbs. pressure



20 & 13 gpm; 600 lbs. pressure



50 & 35 gpm; 600 lbs. pressure



20 & 13 gpm; 600 lbs. pressure



50 & 35 gpm;
600-800 lbs. pressure



7 gpm;
350 lbs. pressure



6 gpm; 60 lbs. pressure



7 gpm; 350 lbs. pressure



2 gpm; 225 lbs. pressure



4 gpm; 300 lbs. pressure



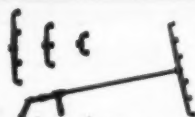
50 & 35 gpm; 800 lbs. pressure



20 & 13 gpm; 800 lbs. pressure



7 gpm; 350 lbs. pressure



Silver Fog Spray Gun



Silver Spray Power Gun



Perfect Spray Power Gun

Choose a sprayer from Myers '49 line, and it's as good as having one custom-built to your specifications. Look at that line-up pictured and you'll readily see why! Myers makes every type to meet every requirement . . . in more than 100 different wheel and skid models . . . and makes them right in every detail. You have your pick of power take-off and engine drive sprayers — with an all-inclusive coverage of chassis, pumps, engines and tanks — each a top performer in its particular job range. There's power aplenty in their famous Myers Bulldozer Pumps. There's utmost simplicity, for lasting dependability. There's a host of up-to-the-minute features, to insure peak spraying efficiency on your job — in the complete, ALL-QUALITY Myers line. And remember: Myers makes a full range of Power Pumps, specially suited to fruit growers' needs — for drainage, irrigation, fire fighting and countless other uses. Mail coupon for catalogs.



THE F. E. MYERS & BRO. CO., Dept. N-126, Ashland, Ohio

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☐ Hand Sprayers ☐ Power Pumps ☐ Hay Unloading Tools

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COUNTY _____ R.F.D. _____

FEBRUARY 1949

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No. 2

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[PRINTED IN U.S.A.]

FEBRUARY, 1949



Clean Peaches?

HERE'S HOW...
CONTROL
Plum Curculio
WITH
Chlordane

FORMULATIONS

Orchard-proven and recommended by leading horticulturists and entomologists—CHLORDANE has a record of TWO seasons' successful performance in the control of PLUM CURCULIO. At CHLORDANE's new economical price, CHLORDANE formulations will go a long way towards producing profitable CLEAN PEACHES as well as Plums, Cherries, Apples, and other fruits.

1. CHLORDANE kills the ADULT Curculio! It KILLS BEFORE the EGG laying period. This prevents egg laying punctures and STOPS damage BEFORE it happens. One female Plum Curculio, if left to live, lays from 100 to 300 eggs!
2. CHLORDANE does not disflavor fruit nor affect its natural fragrance.
3. CHLORDANE reduces the chances of BROWN ROT. It removes the main cause of Brown Rot—the punctures made by the Plum Curculio.


CHLORDANE does not harm trees, foliage or soil, but is actually beneficial because it kills a wide range of other harmful insects at the same time it kills the Plum Curculio. CHLORDANE volatilizes, removing hazards of toxic residue at harvest date. CHLORDANE formulations are easily mixed and pleasant to use.

CHLORDANE formulations are outstanding in the control of the adult Plum Curculio.

ATTENTION DEALERS:

Be sure to have adequate supplies of Chlordane insecticide on hand when needed. Write us for list of suppliers today.

100% Increase



in strawberry yields have been reported in widely separated areas from treatment with CHLORDANE formulations. In the strawberry bed, CHLORDANE controls strawberry crown borer, strawberry weevil, spittle bug, Lygus bug, and minute forms below the soil not commonly observed. CHLORDANE formulations are safe to use up to three weeks before harvest.

KILLS OTHER MAJOR FRUIT PESTS

Such insects as "cat-facing" insects, ants, Japanese beetle larvae, GRASS-HOPPERS, cherry fruit fly, apple maggot, cherry fruitworm, strawberry root weevil and many others are controlled by CHLORDANE.

Write for Circular No. 208A, "Direct Control of Plum Curculio" to Julius HYMAN & Company, Dept. A, Denver, Colo. It contains many useful tables and instructions.

Julius HYMAN & Company

DENVER, COLORADO

MANUFACTURERS OF
OCTA-KLOR® TECHNICAL
CHLORDANE

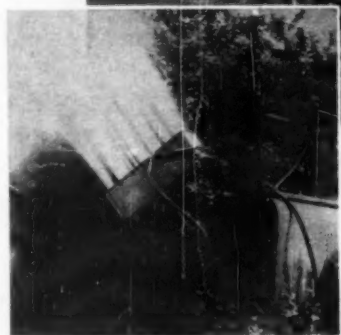
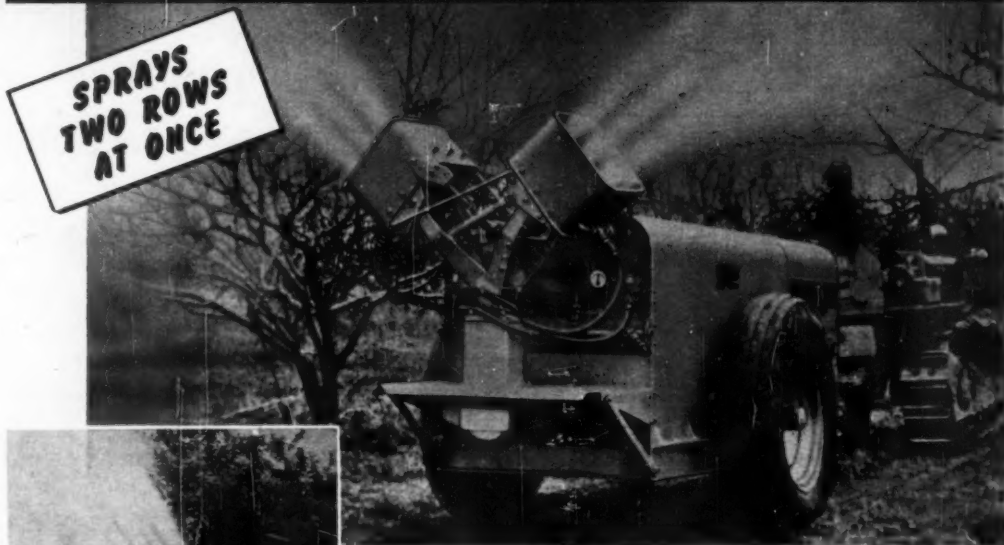
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When buying insecticides
be sure the label states
"Contains Chlordane."

Amazing New Farquhar *IRON AGE* DOUBLE SPRAY HEAD Cuts Drive-Through Spraying Time in Half!

**SPRAYS
TWO ROWS
AT ONCE**



Rugged Iron Age Single Spray Head gives complete, thorough coverage on high-speed drive-through jobs through controlled application by directing spray for approach and following of trees. Stroke adjustable 45° to 90° of travel.



Shut off or detach Spray Head, same Iron Age machine with guns and brooms is ready for careful close-up handwork required on many jobs.

Gives You 2-Sprayers-in-1 for All-Around Orchard and Grove Work

NOW you can cut your spraying time in half with the amazing, new Iron Age Double Spray Head. Plenty of pressure where you need it most . . . the new Iron Age Spray Head covers both sides of the row at the same time. Does twice the work on one drive-through.

This new Iron Age Sprayer with 2 Spray Heads gives you a high-speed drive-through job with tremendous foliage agitation to insure complete penetration. Controlled application guarantees thorough coverage. Spray Heads operate up and down 50 times per minute, stroke is adjustable 45° to 65° of travel.

Conversion to a single head or conventional machine is easy. For conventional operation simply shut off spray heads and hook up guns or brooms where careful, close-up hand work is required. Either way, you are ahead with this two-in-one Iron Age Sprayer—because the famous Iron Age Pump delivers the constant high pressures needed for maximum coverage

at lowest cost. It's built to stand the gaff under toughest operating conditions and last for years without breakdowns.

Before you buy any sprayer, find out how this amazing Iron Age two-in-one machine gives you more coverage, more speed, and cuts your costs lower than ever before. Find out what Iron Age orchard or grove model can best fit your spraying requirements. Ask your Iron Age Dealer for complete details, or send for free information on Iron Age Sprayers to:

A. B. FARQUHAR COMPANY, Farm Equipment Division, 3425-F Duke Street, York, Pennsylvania

Farquhar
IRON AGE
100% P.A.

POTATO AND VEGETABLE PLANTERS • TRANSPLANTERS
SPRAYERS • DUSTERS • POTATO DIGGERS • WEEDERS
MANURE SPREADERS • CONVEYORS • ETC.

PLANT AND SPRAY THE IRON AGE WAY

LETTERS TO THE EDITOR

"Iron Monkey" Business

Gentlemen:

We want to express our appreciation to you for the fine article in your December issue on "Coming Evolution in Orchard Machinery," showing a view of our "Hydraulic Multi-Platform Orchard Machine" with a fine story about it.

There is so much interest shown in our machine that we are having some manufactured. We would like to state a few advantages of our machine other than replacing ladders with their hard work. We have saved up to 50 per cent of some operations over the use of ladders.

The four platforms on our machine are controlled by the worker on his own platform merely by pushing a button to go up, down, swing to or from the tree. We usually have one worker on each platform but have had two on each with equally good results.

Picking our peaches at night using lights from a small lighting plant gave excellent results. The fruit stayed cool most of the following day improving its keeping qualities. We use no pails or picking bags. Boxes slide on the platform railing and when full are placed in a trailer following. Using the short-handled pneumatic pruning shears also has proved a great financial saving.

Mr. W. D. Merrill is a mechanical engineer who should have the credit for this machine and not C. A. (as much as he would like to take it!)

Bakersfield, Calif.

C. A. Merrill

A Reason for Low Apple Juice Sales

Dear Sir:

I am a past president of the Northern Nut Growers Association and have been a subscriber to your magazine for many years. Your article in December on "Why Aren't We Selling More Apple Juice?" interested me very much because I was curious to know why more apple juice had not been sold although I felt I knew one of the main reasons.

Nowhere in this article did this reason appear, however. Repeatedly I have bought apple juice of different brands, by the can and by the gallon, and invariably there has been some preservative in it which disagreed with me. At one time I had some apple juice analyzed by my chemist, and he found traces of formaldehyde. Producers of juice use different preservatives, from benzoic acid to formaldehyde, none of which is good for the human digestion or taste. The addition of these preservatives may be one of the main reasons why the public doesn't bite. I, for one, prefer apple juice to any other juice, when it is sweet and freshly expressed from the apples.

The question of producing and selling more apple juice is an important one, and it had better be studied by the apple growers more intensively if they want to keep apace with the citrus and tomato producers. River Falls, Wis. Carl Weschcke

So that Reader Weschcke won't get the idea that excellent bottled or canned apple juice is impossible to obtain, we are sending him a bottle of Red Cheek brand apple juice produced by the Chambersburg Cooperative Fruit Growers of Fleetwood, Pa. This is one of the best apple juices we have ever tasted. It is preserved by flash pasteurization and has no added preservatives, and we will bet a bushel of Jonathans that Reader Weschcke will ask for more. In our experience, however, apple juice of the quality of Red Cheek is scarce indeed, and we agree that there is just too much inferior juice on the market.

FEBRUARY, 1949

Just to clear up the matter of preservatives, however, formaldehyde is not used as a food preservative; it is a poison. On the other hand, benzoate of soda is an allowable material under standards of the Pure Food and Drug Act and if marked on the container. Anyone who suspects fraud or misbranding should immediately call the matter to the attention of the proper authorities.—Ed.

Bountiful Crops in South Dakota

Gentlemen:

We had a wonderful apple year in the Spearfish Valley the past year—no frost last spring, very heavy bloom, no hail to speak of, and a late warm fall. I never had finer McIntosh and the crops of crabs (Dolgo, Hapa, Whitney, etc.) were so heavy that they made a wonderful sight. The county agent did a lot of spraying last spring, and most trees are in healthy condition with here and there some indications of blight. Apples in this section have a peculiarly delicious flavor, especially the Wealthy and McIntosh; but since most of the big orchards were destroyed by a bad infestation of blight about 20 years ago, growers have not renewed them on the same scale. Spearfish, S. D. Florence Bettelheim

What Is A Fruit Tree Worth?

Gentlemen:

It was necessary for me to cut down (thin out) 320 10-year-old sweet apple trees that were planted in my orchard (20 feet by 30 feet). They were planted too close but were healthy young trees.

I desire to obtain your estimate of their value after planting, spraying, and cultivating for 10 years.

Westfield, N. Y.

Paul E. Green

This is a question that every fruit man and every so-called expert is at one time or another called upon to answer. And there is no good answer. The value of an orchard depends more upon the ability of the man who manages it than upon any other one factor. There are orchards so bad that they are worth less than the value of the land upon which they are growing because it costs money to remove them. There are other orchards so good that they are worth surprisingly large sums. In litigation, usually, the procedure is to start with a figure of one dollar for each year the tree has been planted (a 10-year-old tree means 10 dollars) and then to work both ways from this amount until one arrives at an equitable figure.

Apples for Oranges

Dear Editor:

The readers of AMERICAN FRUIT GROWER are the best fruit growers in the world. Some grow apples, others oranges. Why shouldn't they trade their fruit with each other? Apples to Florida in the summer and fall; oranges to apple growers in winter and spring. Express charges are an obstacle, but perhaps Railway Express, which does such a large business with fruit growers, will co-operate to make an exchange of fruit possible. Springfield, Mo. H. L.

If you would like to participate in such an arrangement, write to AMERICAN FRUIT GROWER. Fruit growers all over the country talk the same language and such an arrangement, besides being mutually profitable, furnishes a fine opportunity for exchange of ideas.—Ed.

NEWEST and FINEST ORCHARD SPRAY NOZZLE

(constant volume, impinging jets)



"TOMMY-GUN" ACTION HOSE LINE TYPE

HURST AQUA-JET NOZZLE (patented)

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1,000 SPRAY PATTERNS at the FLICK of your WRIST!

Angularity of jets changed instantly by means of front hand grip on nozzle. This permits unlimited "working" on the trees with powerful straight stream for minimum particle, maximum coverage pattern.

MORE TREES PER DAY - LESS SPRAY WASTED - LESS LABOR FATIGUE



These Walnut Trees are 50' high

No other type of nozzle can produce such practical and fast-working spray patterns! The pattern is even, the volume is constant—the spray shape and length can be changed in less time than it takes to say it!

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Identical with hose line type except spray patterns are preset by means of an adjusting knob in place of the hand grip. 2 to 3 nozzles on each side of boom give complete coverage and a fast better job of spraying. Equip your rigs in plenty of time for 1949 spraying.



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AQUA-JET Nozzle for use on sprayer boom (F.O.B. San Jose) each \$12.75

AQUA-JET Nozzle for use on hose line (F.O.B. San Jose) each \$39.50

Sales Territories Available

HURST  **Sprayers**

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Main High-Pressure
Sprayers—
Hurst—Wood
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HURST INDUSTRIES, INC.
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now is no time to gamble!

Today, more than ever before, orchardists face the threat of increasing infestations of rosy aphid, red mites and certain scale insects. This is no time to rely solely on summer control with new and unproved organic insecticides. This is no time to

gamble by neglecting the tested and proved control of dormant spray oils.

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1. DENDROL DORMANT SPRAY OIL is the premium straight dormant spray oil on the market today. Dendrol has been tested through 21 years of successful field use. Dendrol mixes readily with water to form a uniform, stable emulsion that protects pear trees against scale insects and pear paylla . . . protects apple, cherry, plum and peach trees against scale insects and red mite . . . and (mixed with Bordeaux) protects peach trees against peach leaf curl as well.

2. STANOLIND DORMANT SPRAY OIL, a successful low-cost spray for 11 years, offers control of pear paylla, red mite, scale insects, and leaf rollers. Can be mixed with dinitro compounds to control rosy aphid as well. Can be mixed with Bordeaux to control peach leaf curl.

3. STANDARD APHID OIL protects apples, cherries, peaches, pears and plums against all insects controlled by Dendrol and Stanolind Dormant Spray Oils, and in addition protects against rosy aphid. This is most important, now that rosy aphid—like red mite and scale insects—are on the increase due to the destruction of their natural enemies by extensive use of DDT. Standard Aphid Oil kills hatched aphid lice as well as aphid eggs. Also kills adult pear paylla flies as well as pear paylla eggs, and prevents flies from laying additional eggs. Thus Standard Aphid Oil

is an effective multiple-purpose spray at any time during the dormant period, and its safety permits its use until buds show green. Twelve years of successful field use have proved the excellence of this product.

The dormant oils of the Standard Oil Company are of the highest Superior insecticidal quality possible, consistent with cost, in respect to the important characteristics of gravity, V.I. (viscosity index), and U.R. (unsulfonated residue).

Contact your nearest Standard Oil Representative for complete information, or write to:



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Must used
with guns
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**The Simplest
Spray Pump:
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Gear assembly—**

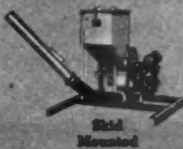
moves the Yoke-and-Plunger unit. These are the only moving parts of a "Friend" Pump except the valve balls.



DUSTING without interruptions is assured by the strong, simple construction of "Friend" Dusters... thousands have given years of hard service with only trifling upkeep cost, or none.

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Fruit growers have found dusting a valuable supplement to spraying . . . gives much faster coverage in emergencies such as threat of apple scab, or brown rot of stone fruits.



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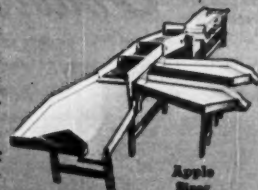


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There's a "Friend" Duster for every grower's needs . . . for Large, Small or Medium acreage. With engine, or for power take-off. All have high-speed fans that give powerful air blast, and thorough penetration of top centers. Any type of mounting. Write for catalog.

SIZING that protects the quality of your fruit is provided by "Friend" packing house equipment.

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There are combinations for every need, from the small grower to the largest commercial packer. Catalog of "Friend" Packing House Equipment will be sent on request.

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Smart idea!

It brought him a pot of gold at the end of rainbows... millions of 'em!



COLORADO RAINBOW TROUT are the stock-in-trade of Ford Truck user Horace Frantz who has raised and sold trout for eating and stream-stocking purposes since 1919. He farms as many as 2,000,000 trout at Colorado Springs and Salida. Sales for '48 exceeded 300,000 lbs.



TO KEEP TROUT healthy, water must be kept charged with fresh oxygen. Frantz cascades it down steps, sprays it from overhead, to keep it fresh.



"SPRING WATER temperature in rearing runways never goes below 50 or above 52 degrees," Horace Frantz (above) says. Hatching period is 4 to 6 weeks; "harvest" in 1½ years.

HORACE FRANTZ

Smart move!

He uses Ford **Bonus Built Trucks** to do the hauling in his business!



NEW MODEL F-5 FORD TRUCK with platform body is used in a demonstration test at feeding time by Ford Dealer, Bob Allphin. Says Frantz, "My old Ford feed truck has 175,000 miles on it, but I'll bet the new F-5 could beat that." "That's a smart bet, Horace," replies Bob, "Ford Trucks are Bonus Built to take almost anything these mountain roads can give them. Every one of over 180 models is built extra strong to last longer."



"DON'T LOOK now," says Ford Dealer Bob Allphin, "but under this cab is something no other truck has! Ford exclusive Level Action suspension insulates against frame weave, smooths out the ride, prolongs cab life."



"ONE OF THE BIG THINGS about Ford Truck engines is their reliability," says Frantz. "That's mighty important to me, too, because in transporting live trout, a few minutes delay might mean loss of the entire load."

HORACE FRANTZ

Smart bet!

FORD TRUCKS LAST LONGER!

Using latest registration data on 5,444,000 trucks, life insurance experts prove Ford trucks last longest.



ARE INSECTS RALLYING AGAINST DDT?

IN 1944 the introduction of DDT swept insects off their feet. The chemical became known as the miracle killer—the all-purpose insecticide—and was described in many other glowing and superlative terms. But now doubt is beginning to appear in the minds of many scientists and growers. The common housefly has developed resistance to DDT, and in some areas fruit growers have reported that it seemed as though DDT-sprayed orchards showed surprising amounts of codling moth injury.

In order to assess the results of the past season with DDT, AMERICAN FRUIT GROWER asked entomologists in California, Washington, Indiana, Virginia, New York, and Connecticut what their observations indicate. These men were unanimous in saying that although it is possible for such a phenomenon to occur, there is no conclusive evidence that DDT-resistant strains of fruit insects are developing.

As W. S. Hough of Virginia said, "We have no scientific evidence that the codling moth has developed resistance to DDT." In terming a mild revival of codling moth activity in 1948 a "surprise development," P. J. Chapman of New York reported, "Although DDT seems to have lost its potency against houseflies in various areas, I have as yet seen no such trend in the case of fruit pests."

But what about the housefly? Is its

resistance a forecast of what we may expect from the codling moth? In California, R. L. Metcalf and Ralph March exposed two strains of houseflies to DDT. One strain had never before been exposed to DDT while the second or "wild" strain was collected from areas which had been DDT sprayed. Results demonstrated that the wild flies were highly resistant to DDT as compared to the flies getting their first taste of DDT. Dr. Metcalf points out that both strains were about equally susceptible to Chlordane, benzene hexachloride, Toxaphene, Parathion, and pyrethrins. Another point of interest was that the wild strain was also resistant to other chemicals in the DDT family, such as DDD.

The reason for the resistance in houseflies seems to be that few insect pests breed as fast or have as many generations a year. A process of natural selection has operated over a three-year period to build up a strain of flies which can withstand ordinary doses of the poison without serious effects.

With regard to codling moth, L. F. Steiner, USDA entomologist at Vincennes, Ind., reported, "We believe that long continued usage of DDT in an orchard will eventually lead to the development of strains of codling moth that can tolerate larger amounts of DDT than needed at present for control."

If this is true, then how soon may we expect these new codling moth strains to develop? Dr. Steiner goes on to point out that in the case of lead arsenate, resistant strains developed because of slight differences in the behavior of newly hatched larvae. But whereas lead arsenate killed only newly hatched larvae, DDT deposits kill some of the moths, some larvae after entrance into the fruit, as well as newly hatched larvae, and many hibernating larvae that cocoon under the bark.

Thus with DDT the susceptibility of several different stages of the insect should tend to delay selection of a resistant strain, providing that resistance results from behavior differences as it did with lead arsenate. But if resistance is dependent upon differences in vigor in the codling moth population and these differences are carried through each stage through which the insect develops, a resistant strain might be segregated more rapidly.

But as far as the situation today is concerned, growers need not fear that resistant strains of codling moth are developing. In Indiana DDT has been used on one orchard for five successive years, or 15 generations of the codling moth, and there is no evidence that the pest in this orchard requires additional amounts of DDT to control it than it did in previous years. Actually, because of seasonal conditions, control in 1947 was more difficult than in 1948.

Opinion of western entomologists indicated no difficulties in control of fruit insects with DDT. As W. J. O'Neill of Wenatchee, Wash., put it: "My experiences and observations lead me to discount the development of DDT-resistant codling moth strains thus far in north central Washington. Our crop this year was the cleanest on record and many orchards could have packed their fruit without benefit of sorting with respect to the codling moth." In California, E. O. Essig made similar observations: "Most growers apply but two applications of DDT per season (except on late varieties of pears and apples where three sprays are used), and it is difficult to find wormy fruit at harvest. How-

(Continued on page 39)

Insect Specialists Talk About Changing Status Of DDT



W. S. Hough



P. J. Chapman



Philip Gorman



L. F. Steiner



E. O. Essig

NEW WEAPONS HELP IN PEST FIGHT

**Advanced Application Equipment,
Parathion, Toxaphene, and Other
Recently Developed Insecticides
Are Boon to the Fruit Grower.**

By E. J. NEWCOMER, USDA

A REVOLUTION in the methods and materials used for spraying fruit trees in the Pacific Northwest is under way. It used to be that changes took place very slowly, and even after something new was proven by painstaking research to be good, its adoption for practical use sometimes took years. Now, the new things are adopted with amazing speed, often before the research men have been able to test them adequately. Time is one of the basic elements of research. Fruit growers sometimes have made costly mistakes by not waiting for research to show the way.

Before the last war, methods of applying sprays had not changed much for many years. The spray gun had replaced the rod, and most growers were using stationary sprayers instead of portable machines. But the basic method was the same. An insecticide or fungicide was diluted with water and laboriously sprayed on the trees under pressure through a hose and nozzle. Now, within a few years, it has become commonplace for a grower to ring up the local airport and arrange to have his orchard sprayed or dusted with an airplane or helicopter. Or, he may own a portable machine, large or small, which can be driven through the orchard by one man and which will treat as many trees in a day as a dozen or more men could do with spray guns. This machine may be a small duster mounted on a jeep,

it may be a large and expensive apparatus blowing the spray into the trees with a blast of air, or it may be a very inexpensive gadget attached to a tractor and known locally as a "smoker".

At a demonstration sponsored by the Yakima Valley Fieldmen's Association in Washington last July, no less than 20 different machines were put through their paces before a crowd of 300 growers. All of these machines are in the experimental stage and all are subject to improvement. Many of them will ultimately be rejected. But out of all of this experimentation there probably will come one or more machines that will be able to supply the materials speedily, thoroughly, and economically.

One very important reason for the interest in developing new machines is the existence of new insecticides that are much more effective than the old ones. With some of these materials we can talk in terms of ounces per hundred gallons instead of pounds. Thus, smaller quantities are needed and usually they can be used in the new machines at greater concentrations than would be practicable in the old ones.

The chemist classifies these new insecticides as "organic" compounds—that is, they contain carbon. The important thing to the grower and the entomologist about organic compounds is that their number is almost

unlimited. The insecticidal possibilities of the few thousand inorganic compounds—the arsenicals, the sulfur, the fluorine compounds, and the like—had been all but exhausted and the entomologist was trying to improve them by such devices as adding stickers or spreaders. Now we have a tremendous new field of literally hundreds of thousands of organic compounds to explore for superior insecticides.

Of the organic insecticides already found and proven, DDT has been outstanding. With two or three seasons' use of DDT behind him, the apple grower now knows that the old drudgery of putting on six to 10 sprays a season just for controlling the codling moth is gone and his fruit is much less wormy than it was. DDT has also removed the threat of some of the minor pests in the Pacific Northwest. Climbing cutworms are no longer a problem; a small handful of 10 per cent DDT dust around the base of a tree will stop them. Lygus bugs, which cause catfacing of peaches and deformities in pears, can be headed off with early dustings; and one or two dustings of vineyards stop the grape leaf hopper cold.

But DDT has its drawbacks. It destroys the beneficial insects, the parasites and predators that all these years have been working for the grower for nothing, keeping in check many injurious pests. The little aphelinus parasite of the woolly ap-

(Continued on page 44)

AMERICAN FRUIT GROWER

HOW TO STORE ORCHARD CHEMICALS

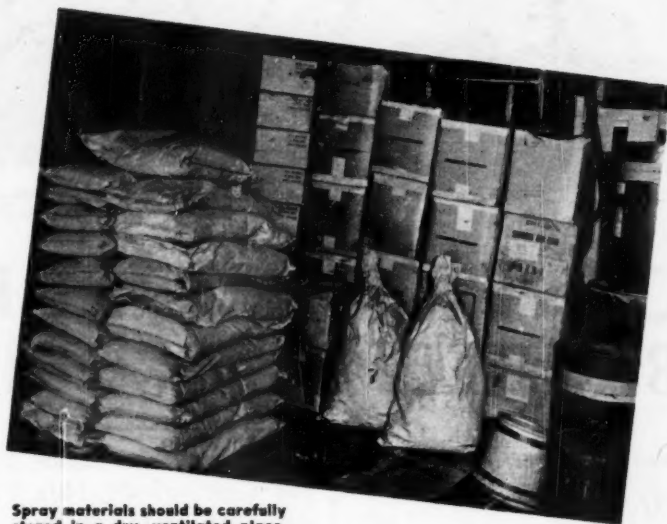
By RAY HUTSON
Michigan State College

A LASTING impression made upon me after visiting hundreds of orchards over a period of years is that few growers or dealers give more than casual thought to the storage of spray chemicals. Two hundred "tombstones" formed when a roof leaked upon bags of copper sulfate intended for "instant Bordeaux"! A grower's cherry crop ruined because a drum of oil-dinitro was among the lime-sulfur drums! A peach orchard defoliated by zinc sulfate without lime! These are a few 1948 examples of disastrous results from neglect to properly stored orchard chemicals. Other examples are not hard to uncover.

Aside from these easily understood examples, there are a number of other angles to this matter of proper handling of pesticides. Contamination, disposal of poisonous spray chemicals no longer wanted, probability of decomposition on long storage, possible salvage values, and fire hazards are some of the things that need consideration.

Contamination is a matter the manufacturer carefully guards against. Shipping chemicals in sealed containers materially increases costs but manufacturers realize that is the only way they can protect themselves. Once a container is broken, anything can happen. Contamination by other materials stored nearby or handled with or near a broken package may occur. Actual mixing need not take place. Spilled lime-sulfur near broken packages of lead arsenate will cause lead arsenate to darken because the "rotten egg" odor associated with lime-sulfur is hydrogen sulfide. Hydrogen sulfide combined with the lead forms a black chemical compound, freeing soluble arsenic.

Contamination from gases generated by fire among chemicals is possible also. However, probably the greatest possibility of contamination of spray chemicals results from careless handling while mixing. Mixing foliage DN sprays in buckets incrimed with lime or in sprayer tanks in which lime residues remain is responsible for many failures with this material. About 10 years ago every spray expert in Michigan and Ohio as well as some from other States tried to determine why a certain block of Jonathan apple trees suffered severe defoliation. When the puzzle



Spray materials should be carefully stored in a dry, ventilated place.

Contamination or Decomposition of Stored Chemicals May Cause Spray Burn or Result in Poor Control of Orchard Pests

unraveled, sodium chlorate insufficiently soaked out of the staves of a wooden spray tank was responsible. This last instance should indicate that it takes just a little contamination to do a lot of harm.

Pesticide chemicals in storage in most cases undergo physical rather than chemical change. Breaking of oil emulsions; sludging of lime-sulfur; lumpiness in lead arsenate, copper sulfate, and zinc sulfate are common examples of this sort of change. Nicotine sulfate 40 per cent is a most stable chemical. But nicotine sulfate 40 per cent forgotten for years in open containers has repeatedly shown more than 40 per cent nicotine upon analysis.

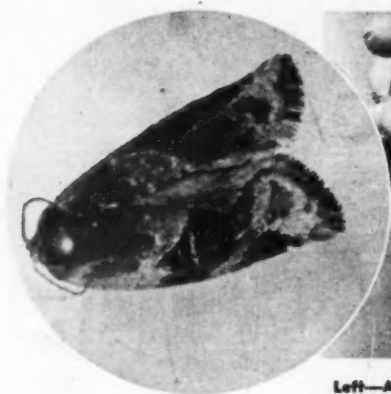
Constant storage at 75° F. or higher breaks many oil emulsions. Some of the earlier oil emulsions were broken by freezing temperatures. Lime-sulfur sludges when frozen, with loss of strength. Moist air increases lumpiness in powdered pesticide materials.

Not a great deal is known about storage of the newer pesticides. Indications are that most of the accepted ones store well in sealed containers.

Lime is the spray material which most often undergoes chemical change in storage. This may be due in part to the casual handling usually given this cheap and readily available material. In any case, spray lime, or calcium hydroxide, readily absorbs carbon dioxide when exposed to the air, thus becoming "air-slaked" lime, or calcium carbonate, which is useless for spraying. Finely ground limestone will do as much good in the spray tank as the average spraying lime. The only way to be reasonably sure of good results with sprays containing lime is to buy fresh lime frequently from a reliable dealer.

Temperature is an important factor in the storage of spray materials. In the first place, some of the botanicals (pyrethrum, rotenone, nicotine dusts)

(Continued on page 50)



Left—Adult red-banded leaf roller. Above—While this insect favors the apple, grapes are sometimes included in its diet. The larvae feed within webbed area.

CONTROLLING THE RED-BANDED LEAF ROLLER

By R. W. DEAN

New York State Experiment Station

WHICH IS WORST—the codling moth or the red-banded leaf roller? Many fruit growers are asking this question only three or four years after DDT entered the picture of pest control. When DDT was first used, it seemed to many growers—and to some entomologists—that the problem of fruit insect control had been solved. But almost immediately orchard mites became increasingly difficult to combat, and a year or two later the red-banded leaf roller struck with totally unexpected force. Unexpected because it is the same general type of insect as the codling moth and, therefore, might reasonably be supposed to be as readily killed by DDT as is the codling moth. Subsequent studies have shown that the larva of the red-banded leaf roller is affected by DDT at certain stages and under certain conditions, but that it is less susceptible to DDT than is the codling moth.

Unfortunately, the same thing is not true of the several kinds of parasitic insects which attack the leaf roller and which help to hold it in check. They succumbed quickly to DDT, and, freed of their controlling influence, the leaf roller became abnormally abundant. Local infestations, usually causing limited damage, occurred at intervals of several years; but nothing resembling the present widespread and destructive outbreak had been experienced before. There is little doubt but that DDT, in eliminating its parasitic enemies, has

New Insecticides Promise Control Of This Pest Which Is Taking Up Where The Codling Moth Left Off

contributed heavily to the build-up of the red-banded leaf roller.

Long before the insect was found to attack apples, it was known and studied as a vegetable pest. Other host plants were found among ornamentals, shade and forest trees, and forage crops. With such a wide range of food plants, it is not surprising that other fruits are also attacked. Peaches, plums, grapes, and currants were found infested by the red-banded leaf

roller during the past summer, but the greatest damage was done to apples.

The life cycle of the pest is well-known. After overwintering in the pupal stage in fallen leaves, the moths begin to emerge early in the spring while fruit buds are still in the prepink stage of their development. Egg laying begins at once, the flat masses, which contain about 50 eggs, being deposited on smooth bark on the trunks and scaffold limbs. The incubation period lasts almost three weeks and hatching starts soon after bloom but before the petal-fall stage is reached.

The first-brood worms feed on the undersides of the leaves close to the mid-ribs and are concentrated in the centers of the trees, particularly on the suckers. As they feed they spin silken webs in which they stay, and, as the feeding areas extend, the leaves become rolled or folded over. Sometimes, two adjoining leaves are webbed together and the larva feeds within the shelter thus formed. In heavy infestations the first-brood worms feed on the fruit when they become larger, but in other orchards no injury to fruit may occur at this time, and even the feeding on the foliage may be so slight as to be easily overlooked.

By early mid-summer the worms complete their growth and transform to the pupal stage within the webs on fruit or foliage. In about 10 days moths begin to appear and to lay eggs, mostly on the foliage, sometimes on the fruit, and, occasionally, on the smaller branches at the periphery of

(Continued on page 42)

AMERICAN FRUIT GROWER



Shallow furrows are typical injury caused by larvae of red-banded leaf roller.



Dusting equipment on the White Springs Farm is kept in first-class condition at all times.



Photos courtesy Niagara Chemical Co.

MY EXPERIENCES DUSTING APPLES and PEACHES

By ALFRED G. LEWIS, JR.

ON our White Springs Farm in Geneva, N. Y., dusts have been used for the control of apple scab and brown rot in peaches for two decades, although my own experience covers only the past 12 years.

In our apple orchards we apply a dormant spray and a delayed dormant oil spray and then rely on sulfur dust for the control of scab up until the calyx application.

In only two of the dozen years have we had scab in our orchards. This included last year, a most difficult one for scab control. The disease infected our McIntosh orchard, which comprises one-third of our apple plantings. The amount of scab was negligible, however, and did not materially affect the commercial sale of our fruit.

Our records show that we have averaged one pound of dust per tree per application. We dust only during a rainy period. About one-half to one hour after it starts raining we get out into the orchards with our dusters. And we dust no matter the time of day or night.

Our dusters—all Niagaras—are kept in first-class condition and are ready to go at a moment's notice. They have given excellent service for the past 15 years and we expect to continue to use the same equipment for some time to come.

Our men are paid overtime for the dusting work because the bulk of it takes place at night. Only one side of the trees is dusted, except under extreme conditions, when both sides of the trees are covered.

Mr. Lewis Relies on His Dusters for Apple Scab and Peach Brown Rot Control. After 12 Years Experience He Lists His Three Secrets for Success.

I have often heard it said that dusting is a much more expensive operation for scab control than spraying. We have found that while we may spend a little more money for dusting material, we obtain better control and have less expense for men and equipment than would be true with spraying operations.

Dr. J. M. Hamilton of the New York (Geneva) Experiment Station, which is within two miles of our orchards, has been of tremendous assistance to us in our dusting program. It is my belief that fruit growers could take far more advantage of their State experiment station than they are doing at the present time in the control of insects and diseases.

The secrets of the control of scab and the application of dust to the best advantage on the White Springs Farm are as follows:

1. Do not apply dust unless you have a scab rain.
2. Have men and equipment avail-

able at all times so that the timing of your application will be as near perfect as possible. (This, to my mind, is the most important factor.)

3. Apply the dust thoroughly and generously. (The previously quoted figure of one pound per tree per application we consider about the minimum.)

For the control of brown rot in peaches, we have been using dust exclusively, until last year, and have had marked success with it. In 1948, because of the Oriental peach moth, our orchard was sprayed with DDT plus sulfur and our dusting operation was cut to a minimum. We dusted three days before we started picking our crop. This was about 10 days after our last DDT-sulfur application.

A large proportion of our peaches is sold to customers who pick their own fruit, and it is highly important from our sales point of view that the fruit they purchase will not deteriorate from brown rot as soon as they get it into home storage or on their roadside stands.

We started the idea of allowing people to pick their own fruit in our orchards three years ago and our sales have jumped from practically nothing the first year to about three-quarters of our crop at the present time. We have 87 acres of orchard, and 17,000 bushels of peaches were harvested this past year. The main factor in our success has been our ability to control brown rot through a combination of dusting and spraying.

PLAN NOW FOR SPRING WEATHER

By IRVING P. KRICK

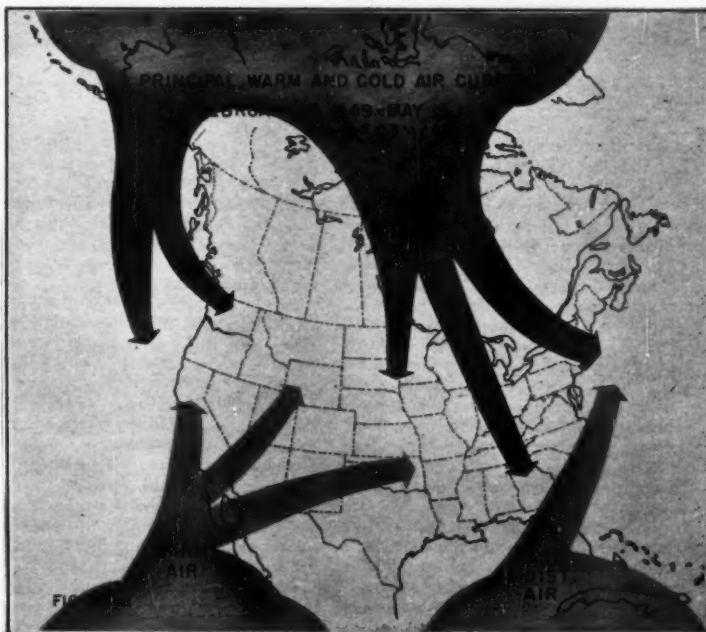
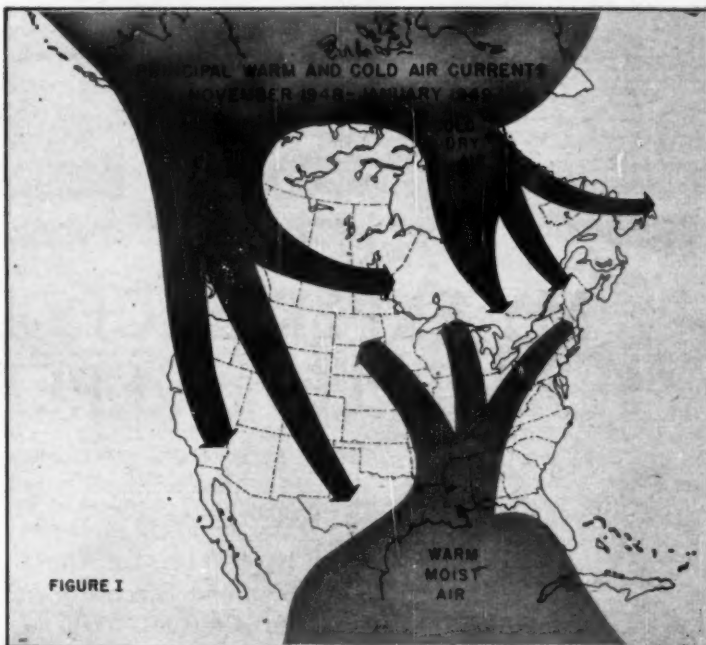
OUR national psychology seems impressed with records. This being true, all of us may well become aware that we are experiencing record weather situations this winter. Parts of our nation are undergoing and, from all signs, will continue to suffer one of the severest winters in history.

This event carries a vast practical significance to the fruit grower, and a recognition of the condition may aid him in developing his plans for the balance of winter and into the spring. The grower whose crops do not suffer from severe weather can count himself fortunate. The apple grower may find it hard to comprehend the unhappy plight of California citrus, but the cantaloupe grower who has had to plant and replant his crop due to destructive freezes can take some small comfort in the fact that he has company in his misery.

Abnormal and unseasonal weather has been the national pattern since November when extremely heavy rains fell throughout the southeastern States, up the East Coast, and in areas through the Midwest. In December, heavy snowfalls covered the Rocky Mountain district, and the East Coast likewise experienced heavy rain and snow, but unseasonably high temperatures. January saw bitterly cold weather throughout the West, including very destructive freezes in California. Heavy snowfalls continued in the Great Plains States and heavy rain fell east of the Mississippi, particularly in the Ohio Valley.

Projecting history into forecast, it can be said with confidence that violent weather will characterize the spring of 1949. To support this statement we shall delineate the weather movements which have affected this country up until the time of writing, and show the manner in which they are expected to develop. To stay within the confines of this article, the projection of the weather pattern must be general, but it may be heartening to the fruit grower to know that at least it is feasible scientifically to prepare estimates of weather developments as they will affect his crop and his area.

Figure 1 recapitulates the movements of the dominant air streams which produced the weather of November, December, and January.



About the Author

President of the American Institute of Aerological Research, and for 15 years head of the Meteorology Department of the California Institute of Technology, Dr. Krick has pioneered in long range weather forecasting. This is the third forecast of spring weather conditions Dr. Krick has prepared for AMERICAN FRUIT GROWER readers, the two previous having appeared in the March, 1947, and March, 1948, issues. The accuracy of his forecasts has amazed fruit growers, and his predictions have given advance notice of factors of importance both in growing and marketing fruit. Every grower will be interested in Dr. Krick's prediction that "violent weather will characterize the spring of 1949."—Ed.

Figure II represents the configurations in these currents which are to be expected this spring. The important features of Figure I are the strong cold currents moving from the polar regions down through the western portion of the continent, and the powerful movement of warm, moist tropical air northward over the eastern half of the country. There has been a second cold air current lying east of North America, but, fortunately, it has been far enough out over the Atlantic to exert only an occasional effect in the United States. However, the December newspaper stories of the Aircraft Carrier "Saipan's" trip toward Greenland in an attempt to rescue airmen trapped on the ice cap described the severe weather in this cold blast.

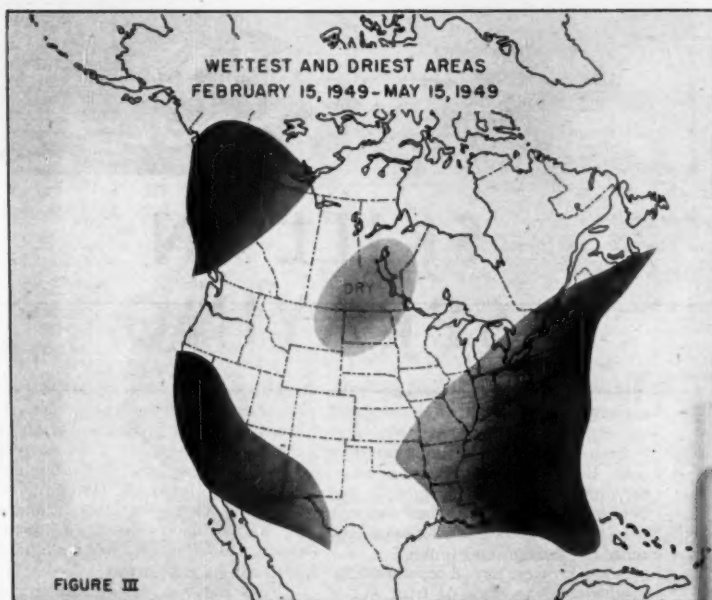


FIGURE III

The heavy rains which occurred in the East were largely attributable to this configuration of the basic air currents. The heavy snowfall in the Rockies and the extremely low temperatures from the Rockies to southern California are likewise a result of this weather pattern. The heavy snowfall with violent storms over the Great Plains States was the inevitable result

of the meeting of the cold western air mass and the warm eastern currents.

One basic change must be applied to the winter weather pattern before trying to visualize the spring development. Figure II shows that the cold air previously dominating the western United States is expected to shift to the area east of the Mississippi during the spring months. Meteorology builds itself such a complex house of cards that the entire spring forecast hinges upon this development. Another current of cold air is expected to dominate the Gulf of Alaska and move southward off the Pacific Coast. A warm, moist current from the tropics will remain along the Atlantic Coast, or just off of it, while new warm, wet air streams will invade the lower Pacific Coast and southern Rocky Mountain areas. These expectations, as illustrated in Figure II, then form the basis for predicting the spring weather.

The moisture expected during spring is shown in Figure III. In the areas not shaded, it is expected that rainfall will approximate that of an average year. The area east of the Mississippi, including Florida, should receive heavy precipitation as strong outbreaks of cold air wedge southward, periodically wringing rain and snow from the warm wet currents. At the close of each major cold push, very low temperatures are likely far into the South. On the Pacific Coast, the cold air blasts will cause heavy rains in the low coastal areas. This will be followed by low temperatures, (Continued on page 43)

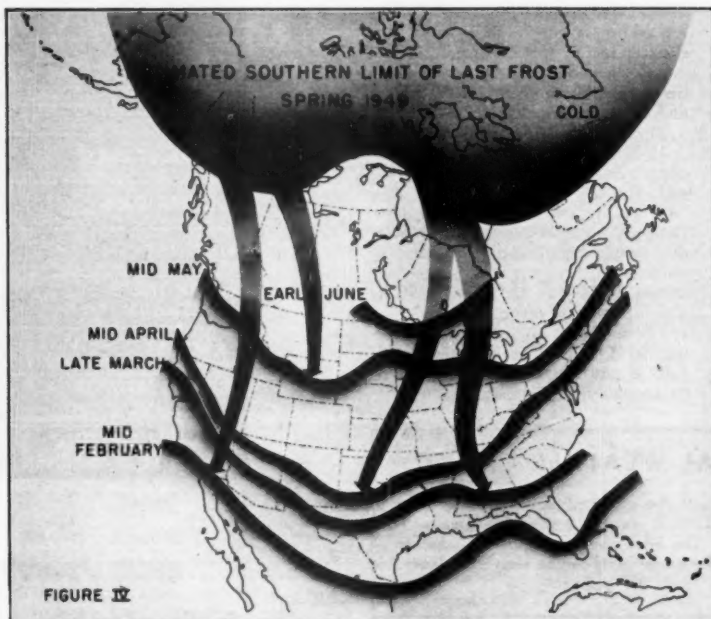


FIGURE IV

FEBRUARY, 1949



SKILL IN SPRAYING

THERE is more to spraying than merely using the right equipment and the right chemicals at the right time. Admittedly, these are important factors. But there is also the human factor, involving skill, judgment, and "know-how," plus individual courage, persistence, thoroughness, and a keen sense of decision and timing.

Some growers have a reputation for producing clean crops of fruit. While it is difficult to put a finger on just what the successful operator does, yet there are a few items that can be catalogued.

First, there is the matter of understanding the weather. With an eye to the weather map and the sky, with a look at the barometer, the thermometer and the weather reports, and with a thorough understanding of the science of weather and the up-to-date information available, the master sprayer makes a good estimate of how the day's weather may affect his spraying and dusting.

He knows that different results may be expected of spray chemicals at different temperatures and under different drying conditions. He knows that oil sprays must not be applied when there is danger of freezing before the spray dries. He knows that high temperatures may result in sulfur burn, and that low temperatures may give copper injury.

If he is using liquid lime-sulfur in the morning and the day warms up considerably, he shifts to milder forms of sulfur. He realizes that under very hot, sunny conditions, water droplets may focus the sun's rays and cause unburned fruit and foliage.

He watches wind direction, gustiness, and strength. He notices that the spray is not getting to the tops of the trees because of wind currents. He knows that lack of thoroughness is sure to spell trouble. He knows that too heavy an application is wasteful; but he also knows that an insufficient amount of spray may make additional applications necessary.

Realizing the importance of innumerable details involved in the spraying operation, he is constantly checking himself, his spray crews, and his equipment. He may offer incentive to his crews by picking samples of fruit from the different blocks and paying a bonus to the crews on whose fruit there is the best coverage.

To help in this matter of spraying, the University of Illinois has offered a five-point check list that is worth a moment of time:

- 1) Use adequate pressure. Do not rely on measurements of pressure gages after two or more seasons' service.
- 2) Select disks with correct apertures for maximum pump discharge, and replace worn disks.
- 3) Spray treetops with special care.
- 4) Examine fruit and leaves frequently for evidence of disease and insect injury.
- 5) Apply enough spray per tree. Determine the amounts to apply by this simple calculation: For the pre-pink, pink, calyx, and succeeding sprays, divide the age of the trees by 4, 3, 2, and 1.5, respectively.

The motto of the successful spray man is, "One good spray applied skillfully is worth more than two applied haphazardly."

ORCHARD CHEMICAL WEATHER CHART

To help growers become familiar with the effect of weather in spraying and dusting, AMERICAN FRUIT GROWER presents a new idea in easy-to-read orchard charts, shown at right. The effect of five important weather factors on spray chemicals and dusts for some fruits can be seen at a glance. Next month Chart No. 2 for Stone Fruits will appear.

DITHIOCARBAMATES

ELEMENTAL SULFUR

LIME SULFUR

FIXED COPPERS

BORDEAUX

ORGANO-MERCURI

QUINONES

PARATHION

HETP & TEPP

TOXAPHENE

CHLORDANE

BHC

DDT

DINITRO COMPOUNDS

DORMANT OILS*

SUMMER OILS

NICOTINE**

ROTENONE**
PYRETHRUM**

CRYOLITE

LEAD ARSENATE
& SAFENER

CALCIUM OR ZINC
ARSENATE & SAFENER

OTHER FACTORS IN SPRAYING AND DUSTING POME FRUITS



TEMPERATURE ABOVE 85°



TEMPERATURE 85°-85°



TEMPERATURE 65°-80°



LIGHT RAIN



HIGH HUMIDITY SLOW DRYING



					Temperatures above 100° required for leaf injury; above 85° for fruit injury. Micro-fine sulfur more injurious at high temperatures than 325 mesh sulfur.
					Unsafe at temperatures over 85°. Unsafe at any temperatures on wet leaves, in rain, or under slow drying.
		X			In rain or slow drying conditions may russet fruit. At temperatures 65°-80° early in season, apples are very sensitive to coppers.
		X			Same as fixed coppers.
					If diluted by rain becomes ineffective.
					Slow drying conditions may cause burning or russetting on fruit and leaves.
		X	X	X	At high concentrations, slow drying conditions or cool temperatures may cause injury to fruit and leaves.
X				X	Rain makes these materials ineffective. High temperatures or slow drying conditions may cause burning.
					May be less effective if applied under slow drying conditions at temperatures lower than 65°.
X				X	May injure fruit and leaves if applied at high temperatures together with high humidity.
				X	High temperatures or moist, wet conditions may cause burning of fruit and leaves.
					If trees are wet or if it rains before spray dries, oil may be ineffective against scale and insect eggs.
					Same as dormant oils. Also, if temperature is high may burn fruit and leaves.
					At cool temperatures or during rain effectiveness is decreased.
					Same as nicotine.
				X	Cool temperatures and slow drying may cause injury to fruit and leaves.
X				X	If applied during rain, material may be ineffective. Under slow drying conditions or high temperatures may injure fruit and leaves.
X				X	Same as Lead Arsenate & Sulfosor.



Safe



Caution



Unsafe



Less effective

© American Fruit Grower Publishing Company

FEBRUAR 7, 1949

*Oil spray should not be applied if temperature is expected to drop below 40° within 24 hours of application.

**Best to apply during conditions of rising temperature, not during falling temperature.

OUTLOOK FOR FUNGICIDES

By FRANK L. HOWARD

Rhode Island Agricultural Experiment Station

Registration of pesticides and study of fungicide performances in 1948 are helping the grower in his disease control program.

THE FLOOD of new fungicides that has deluged the fruit grower during the past few years is beginning to ebb slightly. Performance records from experiment stations and growers are exerting a natural selective process, bringing about stability. The multiplicity in names and claims has confused orchardists and plant pathologists alike, but something is now being done to simplify the situation. Gradually, from this chaos, better disease control materials and more profitable application schedules are emerging.

It is becoming apparent that an unpublicized friend of the agricultural pesticide user is the revised Insecticide, Fungicide, and Rodenticide Act approved by Congress a little more than a year ago. In compliance with the provisions of this law, some 2,660 fungicides had been registered by early December, 1948. Many duplicate trade names for the same product were submitted, but few of us realized the variation in formulation and claims. Under the newly promulgated regulations the manufacturer must not only name the toxicant but also must give the per cent active or inert ingredient in the product. More important, perhaps, is the requirement that claims for uses or performance must be substantiated by proof to the satisfaction of the Federal registration agency. Thus, the fungicide user can read the label on a package, know what he is buying, and what it can be used for.

An attempt to simplify and standardize the names of fungicides, particularly the new complex organic compounds, is being made by a committee of the American Phytopathological Society in co-operation with industry and the U. S. Department of Agriculture. Approved names will be copyrighted in the name of the public

to preclude their use as private product trademarks. This will not prevent dealers from labeling their product with distinctive brand names, but the ingredient statement will carry the simple official name for the toxicant rather than the complicated, often unintelligible chemical name. Furthermore, the Maine and Pennsylvania agricultural experiment stations are compiling a list of commercial pesticides for issuance in bulletin form. This should prove to be a "bible" when fruit growers purchase fungicides, if it is kept up-to-date with supplements.

Fungicides are bought to make possible the production of disease-free fruit, but ingredient statements and manufacturers' claims do not necessarily insure optimum field performance under all conditions. Twenty state experiment stations have agreed to conduct one or more comparative trials of new and old fungicides for apple scab control. A compilation of the data from these tests, supervised by accredited plant pathologists in widely scattered geographic areas, forms the most reliable basis available for recommendations regarding efficacy of products. This summarized information is presented each year at a conference of northeastern spray specialists and at the annual national meeting of phytopathologists. Copies of the summary will be made available to interested parties early in 1949 in the "Plant Disease Reporter" by courtesy of the U. S. Department of Agriculture.

The data show that local conditions are such that no one material will outperform all others, and that the sure-shot noninjurious fungicide is yet to be developed for apple scab control. The experience of the pathologist in each State must be relied upon to interpret the type of product capable of yielding best results in a given

district at a certain date with available equipment. In the 1948 Illinois trials, a phenyl mercury formulation (Puratized Agricultural Spray) was the best treatment. Under Indiana conditions, Crag 341C was outstanding. Phygon permitted the least fruit scab in Maine. Fermate prevented scabby fruit in a Geneva, N. Y., orchard. In other New York trials, where sprays were delayed until infection periods occurred, two phenyl mercury "eradicant" fungicides, Tag 331 and Puratized B, were superior. Also in Ontario, Canada, Tag 331 outperformed 11 rival products. Micronized sulfur showed up best in Ohio.

From the above, it would appear that with fruit fungicides, as with horses, you pay your money and take your choice—win, place, or show. However, choosing a fungicide which will at least run in the money and pay off can be fairly well assured from the summary prepared by Dr. J. M. Hamilton of the New York Experiment Station, who co-ordinated the 1948 tests for the control of apple diseases.

Wettable sulfurs ("Mike", Magnetic "70", Magnetic "95", Everett Paste, Flisol, G.L.F. No. 4, Sulfuron X, Mulsoid, Microflotox): If the carry-over of inoculum was small, the timing of the applications good, and the apple variety resistant to scab, the wettable sulfurs were effective in the 1948 tests. Magnetic "70" appeared to be the most effective. Increased concentrations or the addition of stickers did not materially improve control. A combination schedule of a metal carbamate, phenyl mercury complex, or naphthoquinone with sulfur may prove to have merit.

Carbamates; as represented by the iron dithiocarbamate (Fermate), for the first time proved decidedly effective. The combination of Fermate with Puratized or Phygon increased the protective action. Fermate reduced the effectiveness of Puratized, Tag 331, and Phygon when the mixtures were applied after infection periods. It acted, however, as an arsenical injury corrective when added to Puratized. Manganese bis-dithiocarbamate is apparently inferior to Fermate for scab control. Zinc ethylene bis-dithiocarbamate (Parzate, Dithane Z78) either caused injury to the fruit or failed to control fruit scab in the few tests made.

The glyoxalidines were represented in the co-operative trials by Crag 341C and 341B. Results with 341C were erratic where tried, the 341B formulation gave good scab control; however, it needs additional testing.

Quinones evaluated were Bioquin 50W, Copper 8, Bioquin 1, and Phygon. Bioquin 50W was not adequate

(Continued on page 38)

AMERICAN FRUIT GROWER

Black Leaf 40

"We know that when we put Black Leaf 40 in the tank it will do its job"



BLACK LEAF 155

is a prepared dry compound that meets the demand for a fixed nicotine spray. A stomach poison as well as a contact poison, it is particularly deadly to the young codling moth larvae as they crawl through the adhesive particles. Black Leaf 155 may be used in combination with summer oils, neutral coppers or neutral sulphurs. It can also be used with DDT, ferimate or karbam and other standard spray materials.

Black Leaf 40 is discriminating

It destroys many small, sucking insect pests, yet spares their natural insect enemies. Thus Black Leaf 40 keeps your insect allies fighting on your side.

KILLS APHIDS

Also controls leafhoppers, apple red bug, most thrips, four-lined leaf bug, pear psylla, codling moth and larvae, bud moth larvae, pear midge, leaf-miners, pecan phylloxera, pecan nut casebearer, and similar insects.



SPARES BENEFICIAL INSECTS—

such as lady bird beetles and their larvae, aphid lion, syrphid fly, chalcid wasp, orius bug, epyris wasp, braconid wasp, various egg parasites, and numerous other beneficial predators. Black Leaf 40 also spares bees, the pollenizers.

OTHER ADVANTAGES:—

Black Leaf 40, used as directed, kills by fumes as well as by contact.

It does not injure fruit or foliage.

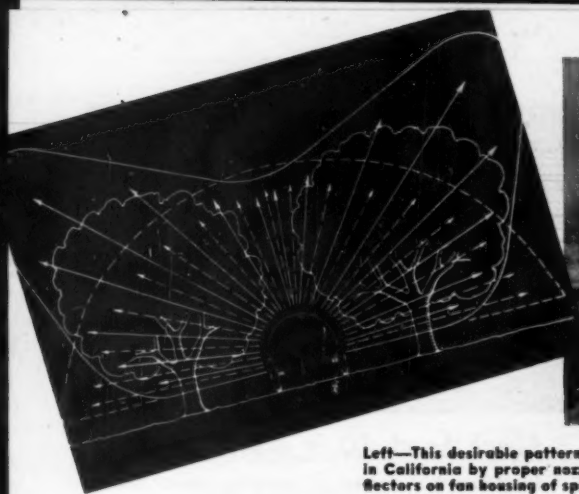
It is compatible with other standard spray materials.

It leaves no undesirable residue.

TOBACCO BY-PRODUCTS & CHEMICAL CORPORATION

RICHMOND, VIRGINIA

Black Leaf



Left—This desirable pattern of spray discharge is obtained in California by proper nozzle arrangement and use of deflectors on fan housing of sprayer, as shown in above photo.

PARTIAL CONCENTRATES FOR AIR-BLAST SPRAYERS

Successful for Scab

By A. B. BURRELL
Cornell University

AN IMPORTANT part of the cost of spraying is due to the use of tremendous quantities of water. Spray formulas are based on machines which depend on water to carry the chemicals into the trees. Since air-blast sprayers propel the chemicals largely by mechanically generated wind, it should be possible to devise ways of securing suitable distribution with less water.

In Clinton County, New York, where the writer does most of his experimental work, over half of the spraying is done with one make of air-blast machine, the Speed sprayer. Therefore, studies were undertaken with a 1947 model of this machine, to see if it could be adapted to the use of concentrated mixtures.

In the first phase of the work, 100 acres of rather closely planted McIntosh orchard, 17 to 18 years old, were cared for throughout the season with double concentration, half-gallonage sprays, using the Speed sprayer with regular-type nozzles. The materials were elemental paste sulfur, and, when needed, lead arsenate and lime. In a five-acre area, DDT was substituted for lead arsenate. During the season eight and one-half applications contained the sulfur as described. Three other sprays were for insect control only. In early spring the spraying of the east side and of the west side of the trees usually was separated by a few days. The gallonage was lowered by reducing the number of nozzles on each side from 44 to

22. Speed of driving was around four miles per hour at the pre-pink stage and less than 3 miles per hour for later sprays. Sideward and upward carry of the spray was not good enough with faster driving. An effort was made to obtain coverage before, or, in emergencies, during the early part of each infection period.

A comparable six-acre section of the main block received identical sprays except that they were of the standard concentration and usual gallonage.

In a year somewhat conducive to scab, control was perfect on leaves and fruit both with the regular spray and with the double concentration half-gallonage applications. In both cases about three per cent of the fruits were reduced below U. S. No. 1 grade by russet, due partly to spray injury. Insect populations were low and only one per cent of the fruits showed insect injury, so no conclusions can be drawn.

In early fall, preliminary coverage tests were made with four times the usual concentration. The mixture consisted of 40 pounds of 45 per cent flotation sulfur paste, 12 pounds of lead arsenate, and 12 pounds of

(Continued on page 46)

Material Cost Reduced

By ARTHUR D. BORDEN
University of California

FIELD TESTS were conducted in California deciduous orchards in 1947 and 1948 to determine a means for getting away from using the large volume of spray as was employed in the bulk spraying applications. Using the Speed sprayer equipment with more concentrate sprays and reducing the gallonage discharged, it was shown that as good coverage and as good deposits were obtained with low volume sprays as were obtained with bulk sprays. In most instances it was necessary only to increase the concentration of spray chemicals in the spray tank by 50 per cent, and the gallonage applied per tree could be greatly reduced. In low volume spraying the trees are wet only to the point of drip with no appreciable run-off. This meant more trees per tank and a saving of approximately 50 per cent in the cost of material applied per acre.

To obtain these results, certain adjustments were necessary in the discharge head of the equipment. The number of nozzles was reduced to 42, and the disc openings in the nozzle were reduced to 0.060 of an inch. In order to give the proper discharge pattern so as to obtain adequate deposits in the tops of the trees, two things were found to be necessary. Deflectors were placed in the housing of the discharge head which directed more of the air towards the high tops, and the nozzles were arranged so as to give more spray discharge in this sec-

(Continued on page 47)

What Are Concentrates?

Although it is often mistakenly thought that concentrates are special-type spray materials, such is not the case. Concentrates are orchard spray chemicals applied in a less dilute form. Thus the term "concentrates" refers to the mixture in the tank and not to any specific spray material.—Ed.



• California Tallies Her Freeze Losses • Exclusive Apple Club Awards Prizes

CALIFORNIA—As this issue goes to press California citrus growers are endeavoring to tally up their losses as a result of the January freeze, considered comparable to the freeze of 1937, which was the most severe in recent years. Substantial damage was done to all varieties, according to Paul S. Armstrong, general manager of the California Fruit Growers Exchange; however, an accurate estimate of damage will not be available for some time.

At an hourly cost of \$600,000 for fuel oil alone, growers attempted to raise the temperature in their groves the required 10 degrees or more from lows in some sections of 17° and 19°. Unusual air conditions, however, made possible only a seven-degree raise during the first hard freeze which hit on January 3 and 4. Conditions looked so hopeless when 53-year-old Oliver S. Powell went out into his 60-acre grove that he lost courage and ended his life.

On January 10, four to eight inches of snow fell in southern California foothill citrus areas but no serious damage to trees from either snow or cold temperatures was reported, according to Mr. Armstrong.

At the time of the first hard freeze, 80 per cent of the central-northern California navel orange crop had been harvested, but harvesting of the southern California navel crop had just started. The USDA's report of January 14 indicated that about 30 per cent injury had occurred to the navel crop in the combined southern counties. Total expected State production loss, according to the USDA, was indicated at 26 per cent. Only a small amount of the damaged fruit would probably be useful for by-products.

The Valencia orange crop, 92 per cent of which was expected from the southern counties, was reported by the USDA as being injured from 25 to 31 per cent in the important counties. The Valencia crop loss for the entire State was indicated at 23 per cent.

The State crop reduction of lemons was estimated at about 27 per cent. About 94 per cent of the grapefruit acreage is in the southern counties. Estimated losses of summer crop grapefruit for the State were reported by the USDA at from 18 to 20 per cent.

Growers and shippers are adhering strictly to the provisions of the law which prohibits picking or shipping of frost-damaged commodities.

NEW YORK—From exhibit halls to program sessions, New York growers found much of interest at their 94th annual meeting held in Rochester, January 12-14. Sixty-four commercial exhibits, which included the first displays of the new Friend air blast sprayer and the Hardie mist concentrate sprayer, received considerable attention. The educational display of the College of Agriculture and the State Experiment Station also attracted many

growers, with exhibits on control of red-banded leaf roller and balanced pruning for grapes.

A program hitting upon important problems in growing and marketing provided valuable information for the visitors. Feature of the first day was a panel discussion on selling the crop, led by Lloyd Slater of Ithaca. Fifty-eight samples of apples purchased in 19 retail stores the preceding day were inspected and graded. One-third of the apples purchased were McIntosh, and at least half of these were of poor quality. Cortlands were of better quality, and Rome Beauty apples ranked among the best quality.

Dr. R. M. Smock, Cornell University, pointed out that rough handling from grader to consumer can cause 100 per cent bruising on a tender-skinned variety such as McIntosh. Chester Lyman, Albion, N. Y., advised that there is no better salesman than an apple in excellent condition. "Give yourself the thrill of satisfied customers, constant demand, and easy selling," said Lyman.

Nelson R. Peet, Webster, N. Y., told of his experiences putting up 75,000 consumer-sized units of apples last year.

CALIFORNIA FROST FIGHTER



Los Angeles Times Photo
Wind machine with airplane propeller mounted atop giant tower circulates air through California citrus grove to prevent frost damage.

Pointing out that an essential for successful pre-packaging is constant supply and that no one grower is large enough to assure the volume needed, Peet said that pre-packaging will be done by groups of growers or by other interests.

In the president's address Donald F. Green of Chazy called for closer co-operation between grower, distributor, and retailer, to insure higher quality fruit at the retail store.

Stronger enforcement of apple grading regulations was called for by the society as well as better information on movement of fruit, removal of diseased and uneconomic orchards, inclusion of grapes in the State fruit census, improvement in Weather Bureau forecasts in the fruit belt along Lake Ontario, and approval of the principles of reciprocal trade agreements, of an open season on does to reduce deer damage, and of the school lunch program.

MARYLAND—During the recent meeting of the Maryland State Horticultural Society five growers were awarded handsome sterling silver goblets. This event was duplicated at the Virginia State Horticultural Society meeting. And again at the West Virginia meeting in February five West Virginia growers will be the proud recipients of the award.

These goblets, all appropriately engraved, together with framed certificates, attest to the quality apples marketed by these growers and to their membership in the exclusive Appalachian Quality Apple Club, sponsored by the Baltimore and Ohio Railroad as a feature of its agricultural development program.

The proud growers are as follows:

In Maryland: Hill Crest Orchards, Frederick; Albert Fike & Son, Cordova; W. T. Delaplaine, Frederick; J. P. Caspar, Hancock; and Dillon Orchards, Hancock.

In Virginia: Narrow Passage Orchard Corp., Woodstock; Mrs. Frank Sleeter, Round Hill; D. K. Russell, Clearbrook; Fred L. Glaize, Winchester; and W. A. Morris, Jr., Roseland.

In West Virginia: Dr. A. B. Eagle, Martinsburg; Romney Orchards, Inc., Romney; Mountain View Orchards, Three Churches; Bett-Morr Orchards, Charles Town; and Consolidated Orchards, Inc., Paw Paw.

Recognizing the importance of top apple quality on the markets, the B & O organized the club to help encourage the orchardists of the three-State area to pack nothing but the best.

Last fall interested apple growers of the three States made application for membership in the club. During harvest season they secured Federal-State inspection of a particularly good 500-bushel "carlot" of apples which became their entries in the club. The five best for each of the three states were then selected for 1948 club membership.

VIRGINIA—The reason for pruning fruiting plants was summed up by Dr. A. L. Havis, of the USDA, Beltsville, Md., at the recent Virginia State Horti-

(Continued on page 30)

CHIPMAN

**INSECTICIDES
FUNGICIDES
WEED KILLERS**

for
Reliable Control . . .
You can't do better!

HI-TEST LEAD ARSENATE

Greater safety and more killing power . . . assured by *unequaled* guaranteed chemical content.

CHIPMAN DDT SPRAY POWDER

Contains 50% DDT. Used as water-suspension spray.

CHIPMAN PARATHION SPRAY POWDER

Highly toxic contact insecticide containing 15% Parathion. Controls aphids and mites on apples and pears.

BERAKO - Rotonone Spray

Contains 2½% pure rotenone with special wetting agent. Recommended for cherry fruit fly, green peach aphid, and certain other insects.

COPPER HYDRO

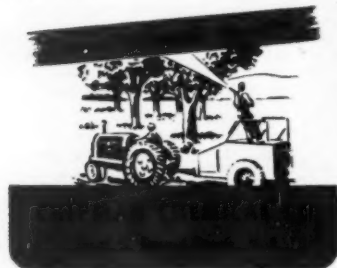
Neutral copper fungicide. Easy to mix . . . quick suspension. Does not clog. Compatible with most insecticides. Controls cherry leaf spot, apple scab, and many other fruit diseases.

CHIPMAN 2,4-D WEED KILLERS

Available as Amine liquid, Ester liquid and Sodium Salt spray powder.

ATLACIDE - Weed Killer

Kills all types of weeds and grasses. Destroys roots.



STATE NEWS

(Continued from page 29)

cultural Society meeting in Roanoke, when he said, "We do it to keep the plants physiologically young." Reducing the amount of fruiting wood increases the number of leaves per fruit, permits light to penetrate to the innermost fruits on the tree, and makes possible a more thorough job of spraying, according to Dr. Havis.

Does pruning pay? J. Flint Waller, prominent grower of Staunton, said his pruning program costs about half what his spray program costs. But Mr. Waller pointed out that apples two and one-half inches and up bring about twice the price of smaller sized fruit. Also, highly colored apples bring from 50 cents to \$1.50 per bushel more than poorly colored apples. And these differences, he emphasized, can be most economically controlled by pruning.

New types of power pruning tools on exhibit heightened growers' interest in the possibility of mechanizing this operation.

The widespread use of DDT for codling moth control in Virginia apple orchards has resulted in the red-banded leaf roller and the red mite becoming major pests. A ray of hope was given growers by Dr. Edwin Gould, entomologist of West Virginia University Farm, Kearneysville, when he discussed two of the newer insecticides—Rhothane and Parathion—as giving excellent control of these two pests. Since widespread use has not been made of the pesticides, growers were advised to use them cautiously.

Apple scab has been completely controlled with Fermate for four years in Sam Levering's orchard at Ararat, Va. He used no lime sulfur during this time.

Firmer textured peach varieties are less susceptible to brown rot, Dr. Havis told growers. But the J. H. Hale is an exception. Also, the less fuzz a peach has the more susceptible it is to brown rot. But here, too, exceptions exist, as with the Redbird and Rochester, which rot easily. Any condition or orchard practice which prevents or slows drying of fruit and foliage contributes to the spread of brown rot, Dr. Havis explained.

Dr. P. D. Peterson, technical director of agricultural sales, Stauffer Chemical Co., emphasized that peach orchards growing in sod are less susceptible to brown rot than orchards in cultivation or in a cover crop-cultivation system of culture.

Kroger stores in 1948 sold 618 less cars of fresh peaches than in 1947. Why the drop? P. J. Gunner of the Kroger Company, Cincinnati, told growers that Mrs.

(Continued on page 54)



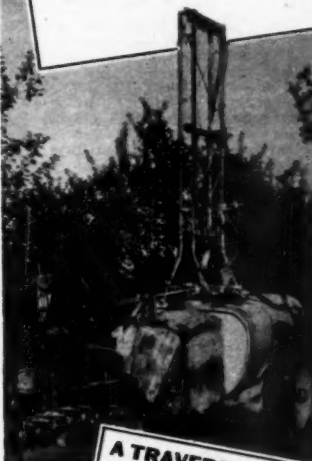
Judging commercial packs at Virginia State Horticultural Society meeting; Fred Drelling (left), assistant extension horticulturist, V.P.I., and Dr. A. L. Havis, senior horticulturist, USDA, Beltsville, Md. First place went to Franklin County Fruit Growers Association.

HERE'S WHAT THE NEW TRAVERSE BOOM DID FOR ME

Dear Sir:

I thought you would be interested in what I think of your high boom. I used it last season and did all the spraying alone of about 40 acres. It used to take three men 40 hours to spray the orchard, but I now do it in 18 hours and do not use any more material. And at picking time I found I had less than 1% of any injury from insect or scab.

Very truly yours,
A. Cranfield
R. D. 2
Hudson, New York



**A TRAVERSE BOOM
SAVES TIME,
LABOR, FRUIT,
SPRAY MATERIAL**

A. Cranfield, veteran grower, says the new Traverse Boom saved him over 50% during the 1948 spraying season. The Traverse Boom is designed for your spraying needs. It is fully automatic and has proven its leadership in the field of automatic sprayers. The New Traverse Boom can be used in any high pressure spraying and comes in two new models. Model 20 for medium trees and Model 30 for large trees.

- Two New Models—20—30
- New Nozzle Design
- Flag-tip Control

WRITE TODAY FOR FULL PARTICULARS

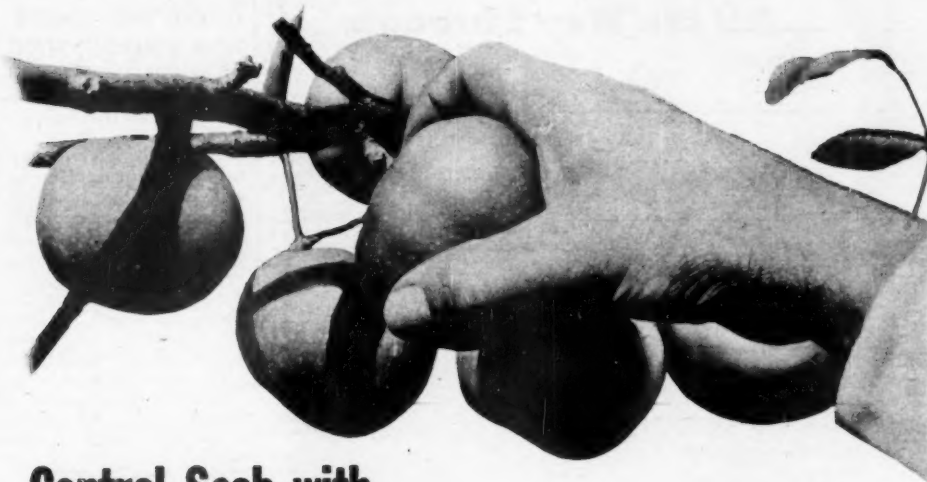
Grand Traverse Orchard Supply Co., Inc.
Traverse City, Mich.

Please send further information on New Traverse Boom:

Name _____
Street or _____
R.D. Number _____
Town or County _____ State _____
Please print.

AMERICAN FRUIT GROWER

For Better Yield and Grade



Control Scab with

Du Pont FERMATE®

ORGANIC FUNGICIDE

"Fermate" provides more than scab control for your apple and pear crop . . . it usually leads to a bigger crop as well as a cleaner crop. And the trees protected with "Fermate" are more vigorous. Here are its outstanding features:

- **Effective scab control** used as dust or spray.
- **Greener foliage**, no stunting of leaves.
- **Compatible** with summer spray oils.
- **Safety from burning**, even in hot weather.
- **No russetting**, even with the tenderest varieties of pears or apples.
- **Higher yields** from more vigorous trees.
- **Better tree condition** . . . better bud formation for the next crop.

Controls other diseases: On apples and pears, the applications of "Fermate" for scab also control rust, bitter rot, black rot, leaf blight and apple blotch. "Fermate" is also outstanding for brown rot of stone fruits, for raspberry anthracnose, cranberry fruit rot and grape black rot.

► **SEE YOUR DEALER** for supplies now. Ask him for free Du Pont booklets, or write direct to Du Pont, Grasselli Chemicals Dept., Wilmington 98, Delaware.

DU PONT CHEMICALS FOR THE FARM INCLUDE:

Fungicides—FERMATE®, ZERLATE®, Copper-A, Fixed Copper, SULFORON® and SULFORON®-X. Weedicides—DEENATE® DDT, MAPLATE®, LEXONE® (Benzene Hexachloride), KRENT® Diabro Spray; Also AMMAT® and 2,4-D Weed Killers, Du Pont Spreader-Sticker, Spray Adhesive, PARMONE® Fruit Drop Inhibitor and many others.

*REG. U. S. PAT. OFF.

Du Pont Also Provides:

"DEENATE" DDT—Exceptional for codling moth and other insect pests of fruit.

"MAPLATE" Insecticide—New, effective, unusually low toxicity. Especially for cherry fruit fly, fruit worm, insect pests of cranberries, stone fruits, grapes.

"ZERLATE" fungicide—Excellent for brown rot of stone fruits. Light-colored, does not show, yet protects fruit through shipping.

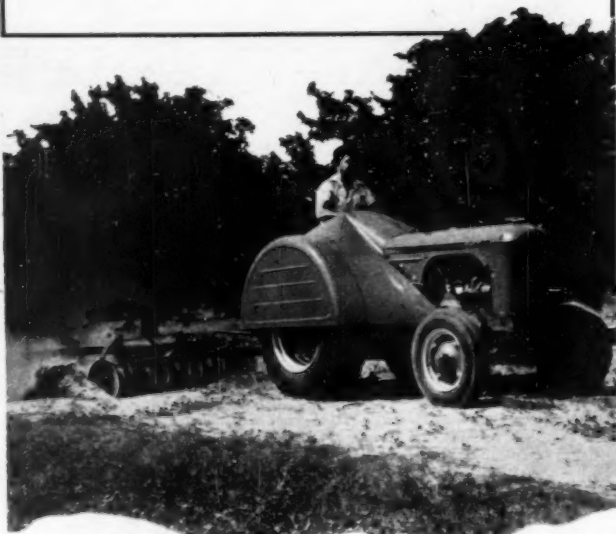


REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

It Costs You Less

...All the Way Through



● The savings with Case orchard tractors begin with moderate first cost and continue throughout years of use. Whether you choose the light 2-plow "VAO," the full 2-plow "SO," or the 3-plow "DO," these fast-working wheel-type tractors cost you less per acre and per year than other forms of power of equal capacity.

On the job, Case tractors get more work done in less time. They have the power you need for effective tillage, plus steady drawbar pull when throttled down for turns or close work without too much gear shifting. Quick-acting turning brakes save time at the ends and make these tractors easier to control on side slopes. Time out for servicing and maintenance is cut to a minimum by simple design and husky construction. Between jobs, or on the highway, smooth-rolling rubber tires save time and avoid damage to road surfaces.

With Case, upkeep costs are low, and fuel economy continues for years of enduring performance. Case tractors give you more and ask for less, in all types of power farming. Let your Case dealer tell you the whole story.



TWO NEW ORCHARD HARROWS

Designed especially for orchards but also being bought for open-field work is the new Case "CO" offset disk harrow—a heavy-duty type with power-saving ball bearings sealed and lubricated for life of the heat-treated blades. The Case-Evans offset harrow has fixed-angle gangs, with gauge wheels for depth control and for highway transport. See your dealer or write for full information on these or other types of harrows, plows, grain drills, mowers, rakes. Mention any size tractor, any farm machine you need. J. I. Case Co., Dept. B-13, Racine, Wis.

MARKET

GROWERS UNITE FOR PROCESSING

● Appalachian area (Penn., Md., Va., and W. Va.) apple growers are facing one of the largest efforts in the history of co-operative apple canning businesses. Three operating canneries with a total volume of 2,500,000 bushels have been offered to growers who are raising \$2,500,000 in stock subscriptions to take advantage of the opportunity. The canneries, all in Pennsylvania, are the Peach Glen and the Chambersburg plants of the National Fruit Products Company and the Ortanna Canning Company plant of I. Z. and Howard Musselman.

It is reported the plants are modern and well-equipped, have established markets, and, most important, the present experienced managements will continue to operate the businesses.

With these three plants, it is estimated Appalachian growers will control 25 per cent of the processing industry of the four-state area. Options for the three plants, good until March 1st, are in the hands of a temporary board of growers headed by John B. Peters of Aspers, Pa.

With increasing amounts of fruit going to processors, one of the big problems facing growers is closer relations with processors. In the Appalachian area last season processor prices started at \$2.00 per hundred-weight, an amount scarcely calculated to favor successful grower-processor dealings. By controlling their own processing plants, Appalachian growers will be in position to strengthen their bargaining position.

NY & NE PROMOTION

● Comparing their dwindling funds for apple promotion to the vigorous promotion efforts of growers in other areas, New York and New England Apple Institute leaders are wondering if they are maintaining their position in competition for the rich eastern markets. In apples alone there are now five states which have advertising assessment laws (Washington, Michigan, Virginia, West Virginia, Maryland) and, in addition, promotional campaigns of citrus growers, red cherry growers, and cranberry growers, to name a few, are tempting the consumer.

This season NY & NE membership has slumped seriously, as is so often the case with an organization depending on voluntary contribution during a

AMERICAN FRUIT GROWER

KETING

year of relatively good prices. In 1946-47, \$34,000 was paid by growers for New York and New England promotion; in 1947-48, \$33,000; and this season \$27,000 has been pledged for this seven-state area which produces 20 per cent of the national apple crop.

In a proposal for stepped-up group action along proved and economical lines, Monte Marvin, secretary of NY & NE, outlined a nine-point program, which includes more frequent news letters to members outlining marketing conditions, increased apple publicity, a field staff of at least three men to work with retailers, increased market research, development of a scientific nutrition story for apples, sponsorship of grading and packing research, and preparation of advertising services for use by members.

"The success of the individual is pretty much in proportion to the success of the industry," said Manager Marvin in his plea for more members. Despite the compelling truth of his statement, the history of promotional movements in other areas would indicate that advertising laws insure 100 per cent grower support.

MARKETING FROM THE EXPERTS

• In line with increased emphasis on fruit, marketing problems, Michigan State College this winter instituted a marketing course which is unusual in that recognized experts will address and confer with students on the practical aspects of selling fruit. Among those who are conducting classes are: Dr. Harry J. Eustace, vice-president, Farm Market Relations, Inc., San Francisco; Dr. Paul S. Armstrong, general manager, California Fruit Growers Exchange, Los Angeles; Porter Taylor, director, Fruit and Vegetable Department, American Farm Bureau Federation, Washington, D. C.; Dr. Irving Woodin, general manager, California Fruit Exchange, Sacramento; and Samuel Fraser, International Apple Association, Rochester.

The term marketing is as general a word as production, but people who can talk intelligently about marketing are as few as the many who know production. By throwing light on marketing questions the experts on the Michigan State College agenda are encouraging the education of needed specialists in selling, packaging, pricing, advertising, and marketing.

FEBRUARY, 1949

TAG
FUNGICIDE No. 331
Controls
APPLE SCAB
BEFORE AND AFTER INFECTION

Another ORTHO First is TAG FUNGICIDE No. 331, an important advance in the protective and after-infection control of apple scab

ORTHO

In those critical weeks of spraying — delayed dormant through calyx—TAG Fungicide No. 331 **ACTIVELY** protects against apple scab infection.

The addition of TAG to sulfur sprays transforms their passive resistance to scab spore attack to **ACTIVE** prevention of scab infection.

TAG prevents the development of apple scab fungus when applied after rains during which scab infection may have taken place.

This new ORTHO fungicidal liquid provides effective after-infection control of apple scab. If scab spots should show up, the immediate use of TAG kills the fungus and prevents spread of the disease.

Your ORTHO Fieldman knows how and when TAG Fungicide No. 331 should be used for scab control in your area. Ask his advice about application to conditions in YOUR orchard.

CALIFORNIA SPRAY-CHEMICAL CORPORATION

RICHMOND, CALIFORNIA
PORTLAND, OREGON
BOISE, IDAHO

SOUTH HAVEN, MICHIGAN
KANSAS CITY, MISSOURI
OKLAHOMA CITY, OKLAHOMA

ELIZABETH, NEW JERSEY
LYNDONVILLE, NEW YORK
ORLANDO, FLORIDA

HODGMAN



No. 1000
Heavy Duty
Rubber
Surface
Suit

THE NAME

That Means



- GREATER COMFORT
- GREATER SERVICE
- GREATER SAFETY

In

RUBBER & NEOPRENE COATED
PROTECTIVE CLOTHING

Send for Catalog Sheet
Illustrating Complete Line

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HOW TO CHOOSE AND USE PESTICIDES PROPERLY

TEN suggestions designed to help growers choose and use pest-control chemicals properly have been prepared by the Agricultural Insecticide and Fungicide Association. These simple rules, if followed, will mean more effective and safer use of such materials. Here are the 10 suggestions:

1. Do some advance thinking about your pest problems. Consider the possible insects or diseases in relation to your specific crops.

2. Select a reliable manufacturer as your source of supply and discuss your particular problems with an accredited representative. Do the same with Federal and State agricultural experts in your locality.

3. Read up on your problem and learn to distinguish recommendations by competent authorities as against mere reports of isolated research.

4. Find out about the possibilities of secondary problems, such as residues and off-flavors. Consider timing of application, dosages, methods of residue removal, etc., as means of overcoming secondary problems.

5. Remember that there are many long-established as well as new chemicals for controlling pests. Compare their relative merits and weaknesses. There are many uses for all pesticide products. There also are some unsolved problems still being investigated by the industry.

6. All economic poisons in interstate commerce must be registered under Federal law. The Federal law, as well as many State laws governing sales of pesticides, are for your protection. Be sure the products you buy comply with all regulations.

7. Determine the type of application equipment you will need and investigate the possibilities of damage to neighboring crops from drift. Accuracy of dosage is essential.

8. If your food crop is intended for processing, discuss your control program with the food processing company. Processors know how to handle products on which many kinds of sprays and dusts have been used. Do not make it necessary for them to reject your product.

9. Read labels and accompanying literature carefully. Read the warnings and directions—and OBEY them. Do not overdose. All pesticides should be handled with care. Some materials may require the use of masks or gloves during application.

10. Keep a record of your operations: material used, dosage, date of application and method, crops, weather conditions, results, and any other information that may be helpful in planning your future operations.

ERADICATE APPLE SCAB

Puratized* AGRICULTURAL SPRAY

Pat. No. 2,423,762

Research workers and commercial growers acclaim this patented formulation as an outstanding contribution for the control of scab and other plant diseases.

PURATIZED AGRICULTURAL SPRAY doubly safeguards your trees. It offers fast, effective protection before infection occurs and acts to eradicate infections after they start.

This unique inactivating power, plus the usual protectant action, makes PURATIZED AGRICULTURAL SPRAY an invaluable weapon for combating scab. Consult your local dealer or write today for further details.

PURATIZED AGRICULTURAL SPRAY

- A low cost spray program — one gallon makes 800 gallons of spray.
- Instantly water soluble
- Leaves no visible deposit
- Can be applied with common insecticides and fungicides
- Effective too, for brown rot blossom blight of cherries and peaches

*Trade Mark

Distributed by:
NIAGARA CHEMICAL DIVISION
FOOD MACHINERY & CHEMICAL CORP.
Middleport, New York
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ALLIED CHEMICAL & DYE CORP.
40 Rector Street, New York City
Manufactured by:
GALLOWAY CHEMICAL CORPORATION
New York, N. Y.

AMERICAN FRUIT GROWER



Protect Your 1949 crop the Automatic *John* **BEAN** way

John Bean LOW-BOY. 8-gun mast for fast thorough coverage. Specially designed for use in small trees, close plantings, or where there is considerable over-hang.

Proven automatic methods assure two-way protection

Your crop is safe, your profits are safe and you cut labor costs with John Bean automatic spraying. The success stories of this John Bean automatic spraying equipment are now in. Without fail, growers report full coverage for complete crop protection and that the time-consuming, labor-using spraying bugaboo is licked, for good. There is John Bean automatic spraying designed for any and every commercial orchard. Let your dealer show you.

CASE HISTORIES TELL THE STORY

99.93% CLEAN FRUIT is the 1948 record of W. W. Reynolds, Utica, O. Three years ago Mr. Reynolds had a bad infestation of codling moth - in 1948 a **Speed Sprayer** helped make clean fruit.

95.26% CLEAN FRUIT IN 700 ACRES was reported in the Nugent and Schapanski Orchards at Grafton, Ill. Manager Dave Dell used several Speed Sprayers and John Bean high pressure spray outfits.

LEAF ROLLER CONTROL resulted from the **Speed Sprayer** operation of Avery Skutt and Jas. Austin, Morton N. Y. They do custom spraying as well and the results in controlling Red Banded Leaf Roller have been outstanding.

JOHN  BEAN

DIVISION FOOD MACHINERY AND CHEMICAL CORP.

LANSING 4, MICHIGAN
SAN JOSE, CALIFORNIA



8-gun automast. Output: to 60 g.p.m. Sprays either or both sides. Full control by one man driving tractor.



SPEED SPRAYER won new laurels in '48 — count on it for complete protection, faster, at least cost, in '49.

Below, 4-gun John Bean Handi-mast. Saves time, money and crops in even the smallest commercial orchard.



COMPATIBILITY CHART AND FUNGICIDES

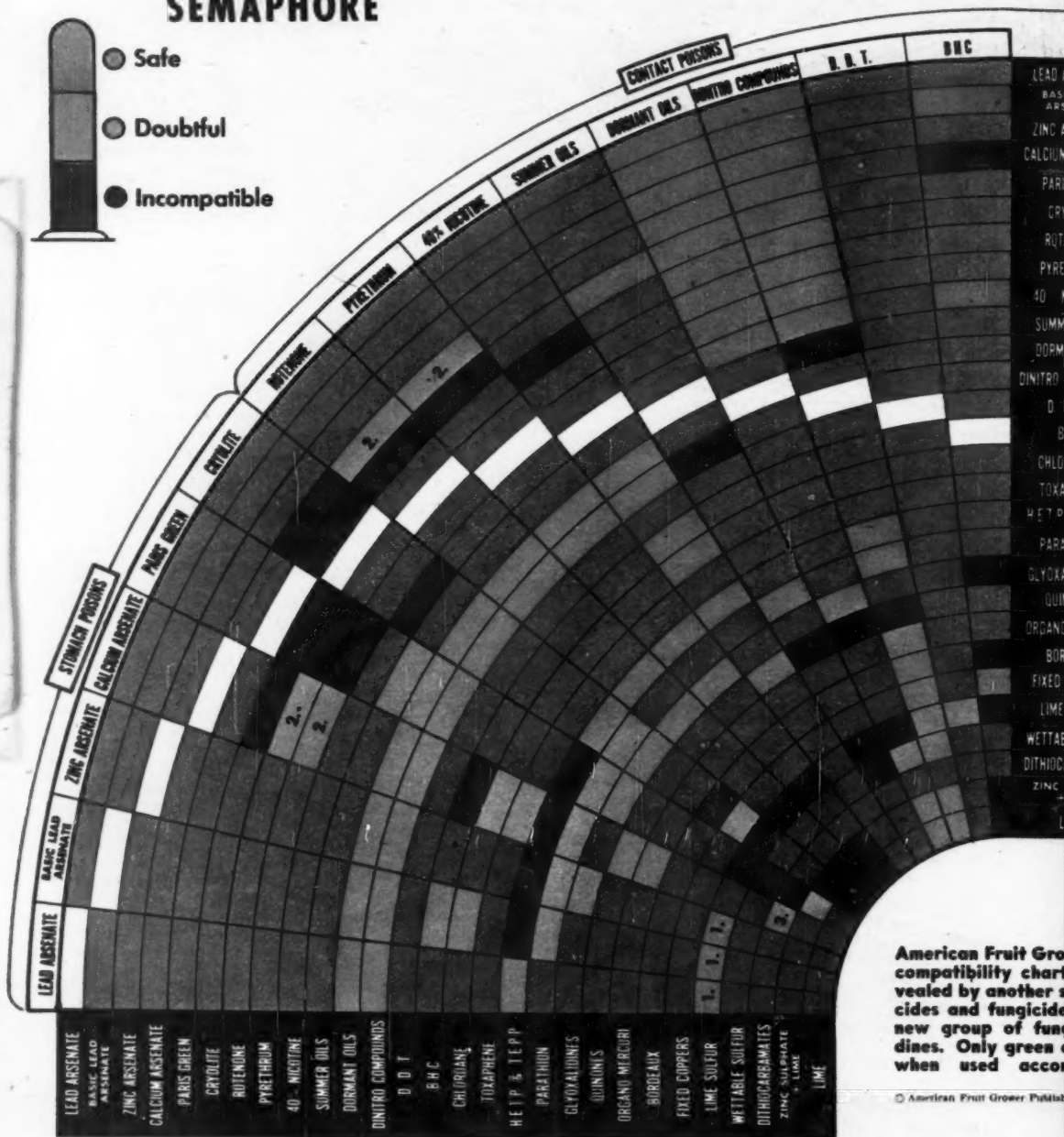
The SPRAY CONTROL
SEMAPHORE



● Safe

● Doubtful

● Incompatible



American Fruit Grower compatibility chart revealed by another group of fungicides and fungicide new group of fungicides. Only green when used according to directions.

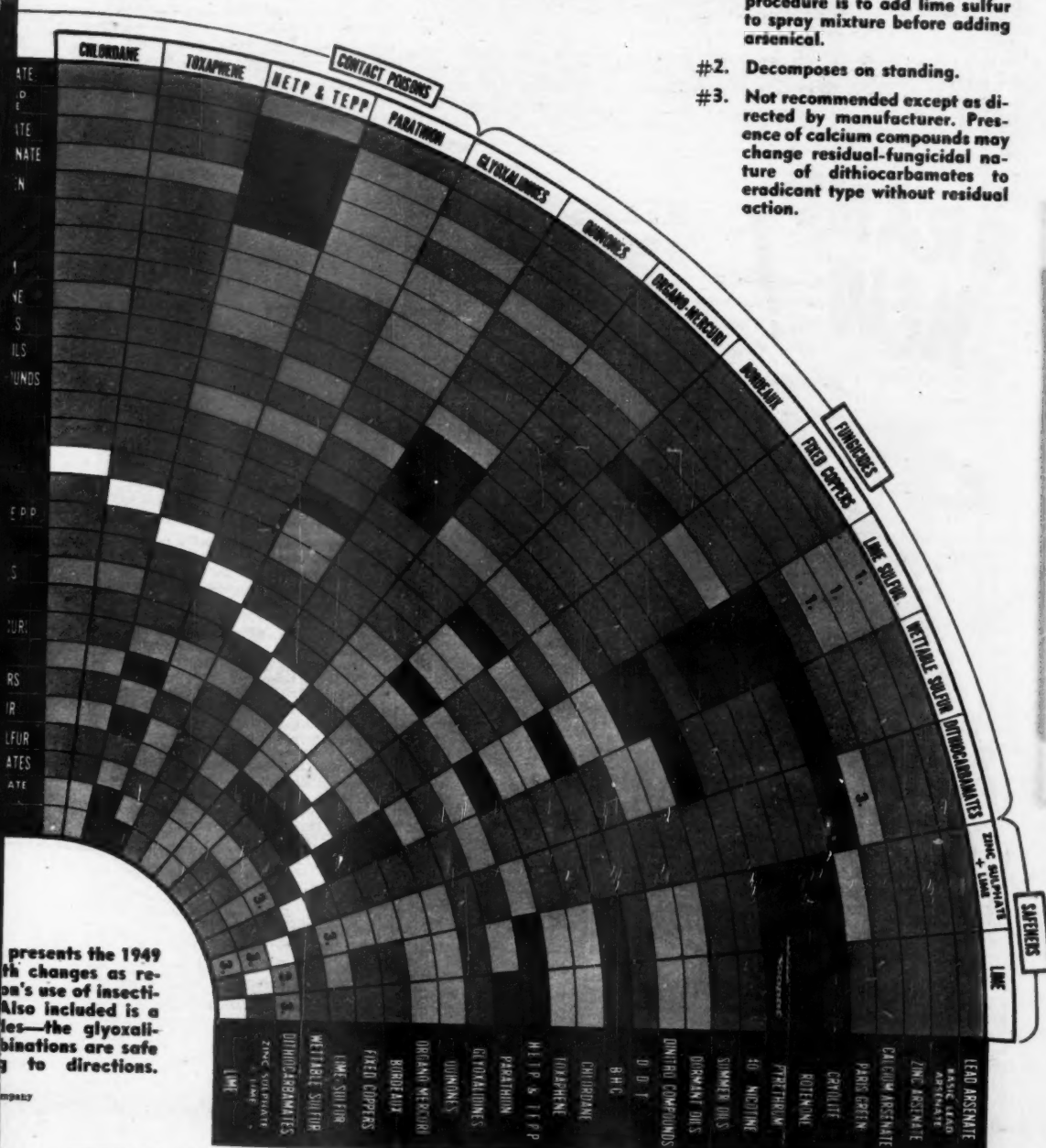
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FOR INSECTICIDES FUNGICIDES

KEY

- #1. Decomposes on standing. Best procedure is to add lime sulfur to spray mixture before adding arsenical.
- #2. Decomposes on standing.
- #3. Not recommended except as directed by manufacturer. Presence of calcium compounds may change residual-fungicidal nature of dithiocarbamates to eradicant type without residual action.

LEAD
BAS
ARS
ZINC
ALC
PAR
GRY
RQTE
PYRE
HO N
SUMM
DOPM
ITRO
D O
B
CHLO
TOXA
ETP
PAR
YOA
QUIN
GAND
BOR
XED
LIME
TTAB
HIOCA
NC
L



presents the 1949
th changes as re-
on's use of insecti-
Also included is a
les—the glyoxali-
binations are safe
g to directions.

OUTLOOK for FUNGICIDES

(Continued from page 26)

for scab control, although it was much improved by the addition of a sticker. Severe injury developed when lime was omitted. Reports are that it will not be available for further testing. Copper 8 was a designation for the same toxicant which likewise gave only fair scab control. Similarly, Bioquin 1 does not appear to warrant commercial use as an apple fungicide. Phygon caused much foliage injury and severe fruit russetting. Phygon at one-half pound per 100 gallons provided inadequate control except under favorable conditions, and even

at a one-pound rate it was not too effective under conditions of considerable rainfall.

Water-soluble phenyl mercury complexes (Puratized Agricultural Spray, Puratized B, Tag 331, PMAS) appear to have found their place as pre-cover sprays. They should not be used in cover sprays on fruit because of possible poisonous residue. Puratized is most useful when applied immediately after infection periods. Scab lesions may develop on treated foliage but will not bear spores for secondary inoculations. Enhanced effectiveness may be obtained by mixing with wettable sulfur or Fermate. Puratized B is seemingly more fungicidal

but is more likely to cause injury. Tag 331 or PMAS has been reported as the most promising material of 1948. It gave the most consistent performance of any of the products tested when applied after infection periods. Some, but not serious, injury occurred on foliage and fruit. Tag 331 was effective against quince rust and proved compatible with most pesticides.

A complex crotonate (Cr 1639) proved fungicidal but caused injury when applied as an emulsion. The dry form was safer but does not seem to be as effective. Another organic, Cr 305, appeared to be a specific for scab control in Connecticut tests, but more experience with it is necessary before release for general use.

The fungicides most useful on grapes have been demonstrated by Dr. A. J. Braun of the New York

BRAND NEW!

KEEPS THE SPRAY RIG SPRAYING



GORMAN-RUPP SPRAY RIG TENDER

Double Spraying Capacity

Water wagon and mixer all in one! Two sizes—600 gal. and 800 gal. tank. Fills rig in 3 to 4 minutes. Cuts spraying costs. Simple in operation. Reasonably priced. Designed, built and guaranteed by the makers of the famous Gorman-Rupp Pumps.

Inquiries Invited

Ask for Bulletin 8 GL-11

Some Dealer and Distributor Territories Available.



GORMAN-RUPP COMPANY

MANSFIELD, OHIO

HANDY ANDY



Made of war surplus and scrap materials, this homemade buckrake takes the places of ten men according to its inventor, Erwin Klenk of Peach Ridge, Mich. The five-tined outfit is attached to the rear of a tractor, and the tubular steel tines extend ten feet ahead of the tractor. Two war surplus hydraulic jacks raise and lower the rake and the lifting power is increased by a rear end fulcrum. When in use the buckrake skims the ground picking up and packing the brush in the tined bed. When there is a full load, the packed brush is dumped onto a central burning pile and the rake is backed away clean on the touch of a hand lever which controls the hydraulic system.

Station. Fermate controls black rot when applied at two pounds per 100 gallons of water before bloom, after bloom, and seven to 10 days later. More, larger, and sweeter fruit developed than when the previous standard Bordeaux mixture was used. If powdery mildew should appear, then Bordeaux will prove superior to Fermate.

Fungicides are expected to be in plentiful supply in 1949. The only restricting factor will be to order sufficiently early to permit delivery for most effective timing of applications.

AMERICAN FRUIT GROWER

ARE INSECTS RALLYING AGAINST DDT

(Continued from page 17)

ever, a few growers applying but one application per season had wormy fruit."

Opinion seemed to be unanimous among eastern entomologists that less thorough spray applications might be one of the factors causing local instances of poor worm control. Phillip Garman of Connecticut pointed out that the general tendency in Connecticut has been toward elimination of as much labor as possible from the spray crew. "Reductions of this sort may not, however, change the picture too much over what it has been in the past, but too much emphasis can easily be put on speed in preference to thoroughness and this is generally the case," he said.

Dr. Steiner of Indiana also mentioned that thoroughness of coverage is still important, and New York's Dr. Chapman commented that another factor was inadequate spray coverage. "After obtaining such remarkable results with DDT in 1946 and 1947, it was perhaps natural by 1948 that there should be a tendency to stretch

NATIONAL PEACH CONFERENCE

St. Louis, Mo.
Feb. 21, 22, 23

out the interval between applications and to lower thoroughness standards in spraying. Apparently there are limits as to how far we can go in these directions," said Dr. Chapman.

In the East one reason for more codling moth activity in 1948 is the increased use of lead arsenate in order to cope with the red-banded leaf roller. As Dr. Chapman pointed out, "The lead arsenate apparently gave no better control of codling moth in 1948 than it did in the pre-DDT era, with the result that the codling moth regained some lost ground."

The history of man's unceasing battle against insects indicates that advantages are usually temporary. DDT has given fruit growers a great weapon, but the search for new insecticides will continue.

Dr. Chapman summed it up when he said: "The fruit industry should expect and be prepared to meet new problems in insect control. But this prospect should not give rise to pessimism. We have made some real advances in pest control during the past few years, and, by keeping at the job intelligently, we should be able to consolidate and extend these gains."

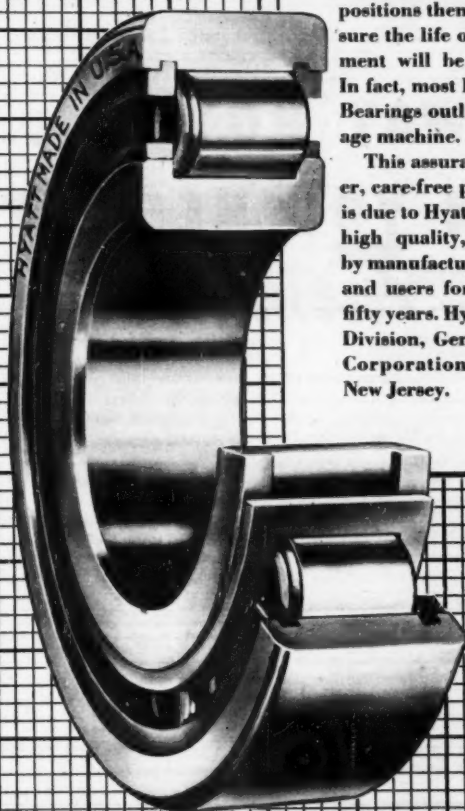
FEBRUARY, 1949

LIFE INSURANCE FOR YOUR EQUIPMENT

Before you buy a tractor, truck, spray pump, or other equipment, check the specifications for bearing information.

When Hyatt Roller Bearings are used in vital positions then you may be sure the life of the equipment will be prolonged. In fact, most Hyatt Roller Bearings outlive the average machine.

This assurance of longer, care-free performance is due to Hyatt design and high quality, recognized by manufacturers, dealers and users for more than fifty years. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.



HYATT ROLLER BEARINGS

5

-WAY POWER...

WHEN YOU NEED IT from your *Farmall Cub*

Hitch your Farmall Cub to the disk harrow—and cover up to an acre of orchard per hour. Then attach the mower, the row-crop planter or cultivator; or line up for a belt job. And watch your Farmall Cub prove that it's an all-season, all-purpose work unit for you.

The Farmall Cub is widely useful in orchard and grove. It's a row-cultivating, a seeding and haying and harvesting tractor. It's a capable belt and power take-off performer. In addition, it produces hydraulic power to control mounted implements by fingertip touch. Its 16 matched, quick-change, direct-connected implements respond to 2-way Farmall Touch-Control.

Here is the Farmall system of mechanized farming in a power package scaled down for all-job, small-acreage duty—or profitable large farm utility. International Harvester builds the Farmall Cub with the power to replace two or three horses or mules. It can handle up to twice their daily acreage on many lighter jobs.

See your IH dealer and arrange for early delivery of your Farmall Cub.

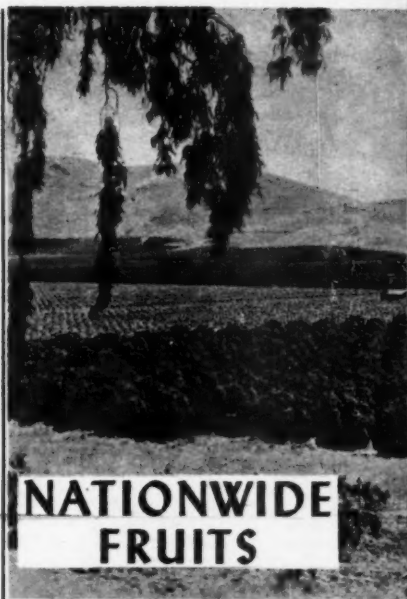
INTERNATIONAL HARVESTER COMPANY

180 North Michigan • Chicago 1, Illinois

INTERNATIONAL HARVESTER



Listen to James Melton on "Harvest of Stars" every Wednesday evening over CBS



NATIONWIDE FRUITS

STRAWBERRIES

• Where snow is lacking as a natural mulch and straw has not been used, strawberries will suffer damage if the temperature goes down to 10°. And should the temperature dip to —10°, damage may be severe if the same conditions prevail, warns W. W. Magill of the University of Kentucky.

Application of straw at the rate of a ton and a half to the acre is suggested by Magill. Distributed evenly over the patch this thin layer of straw need not be removed in the spring. It will help to conserve moisture, prevent the soil from washing, keep down weed growth, and keep the berries clean.

• In order to determine whether accumulations of the insecticide Parathion in the soil have a detrimental effect on plant growth, the Bureau of Plant Industry recently conducted experiments with this insecticide in connection with Blakemore strawberry plants.

Parathion (100 per cent) was added to 80-pound lots of composted Sassafras sandy loam soil in such amounts that the final mixture was equivalent to concentrations ranging from 0 to 100 pounds per acre. Each of the seven treated plots of soil was distributed among eight eight-inch pots, and three one-year-old Blakemore strawberry plants were planted in each pot.

The 56 pots were placed in a greenhouse and the plants were har-

AMERICAN FRUIT GROWER



vested at the end of 71 days. The nitrogen level of growth was maintained throughout the length of the test by the addition of ammonium nitrate to the soil and the insect pests were controlled by periodic fumigation of the greenhouse with hexaethyl pyrophosphate.

No evidence of deleterious effect upon plant growth was noted in the experiments—in fact, growth was exaggerated at every increase in the concentration, and at the highest level used this increase in growth was over twice that developed in the untreated soil. Just what caused this acceleration of growth is not known.

APPLES

● Apple juice having a creamy texture and consistency is being produced commercially in a California cannery by a special process. The comminuted juice is said to contain the required amount of solids in the form of finely divided particles of apple, and to retain the color, flavor, aroma, and most of the nutritive and therapeutic values of the fresh fruit. However, as in the processing of any fruit product, the quality of comminuted apple juice is determined by the quality of the fruit used in its manufacture.

The special equipment used for making comminuted apple juice is the result of 10 years of research by technologists and engineers led by James B. Dole of pineapple fame. The key unit of equipment or com-

(Continued on page 59)

NEW trailer-sprayer combination

NEW

Skid Mounted
150 gal. Hudson
Peerless Power
Sprayer . . .

NEW

Hudson "Ad-
apto" Trailer,
Adjustable
tread . . .



**New ease of handling . . . greater freedom
... adaptable to any spray job, anywhere**

THE SPRAYER

Hudson famous "Peerless" Power Sprayer. Skid mounted; easy to use on any trailer or truck. Low center of gravity and extra sturdy, well-braced skids assure stability and safety. 150 gallon capacity with 2 or 4 g.p.m. discharge rates. Low-speed pump, powerful easy-starting engine.

THE TRAILER

Hudson's latest development. "Adapto" trailer with tread adjustable from 52 to 84 inches. Clearance is full 30 inches. Rugged channel steel frame. Standard implement tires; Timken wheel bearings, dust-tight. Use it with any HUDSON SKID-MOUNTED SPRAYER.

2 MORE FAMOUS HUDSON SPRAYERS



SKID-MOUNTED

Haul it any way you want; on truck or trailer, tractor or jeep. Available in 50 and 100 gal. tanks, with 2 or 4 g.p.m. discharge rate.



ON WHEELS

Roller bearing wheels, full pneumatic tires. One of the most useful sprayers ever built. With 30 or 50 gal. tanks and 2 or 4 g.p.m. discharge.

WRITE FOR FREE VALUABLE BOOK ON COMPLETE LINE OF HUDSON "PEERLESS" POWER SPRAYERS

H. D. HUDSON MANUFACTURING COMPANY • Chicago, Illinois, U. S. A.

Sprayers and Dusters

Hay Tools and
Barn Equipment

Livestock Equipment

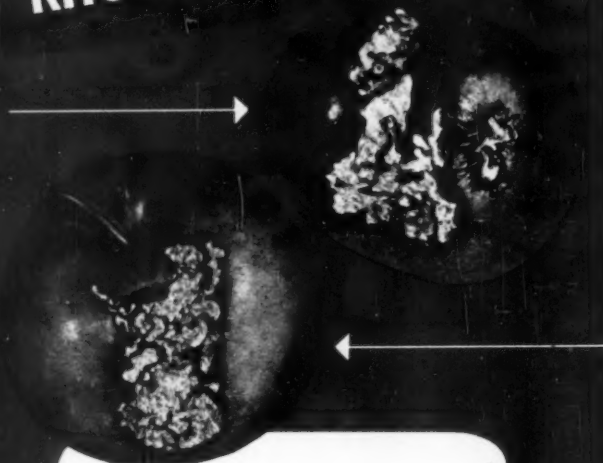


Poultry Equipment

Farm Ventilation
Equipment

TESTED AND PROVED EQUIPMENT

RHOTHANE stops this!



In the Shenandoah Valley, orchards protected by RHOTHANE yielded 85-100% clean fruit, while uncontrolled red-banded leaf rollers were causing 75% injured fruit in neighboring orchards. Experiment Station tests prove RHOTHANE gives almost perfect control (99%).

As a result, the Extension Service in Virginia, West Virginia, Maryland and New Jersey recommended RHOTHANE to orchardists. And in Western New York State, RHOTHANE (DDD) is included in the recommended orchard spray schedule.

One of the safest of the new insecticides, RHOTHANE is only 1/10 to 1/25th as toxic as DDT to man and other warm blooded animals.

RHOTHANE is a trade-mark, Reg. U. S. Pat. Off.

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Representatives in principal foreign countries

RED-BANDED LEAF ROLLER

(Continued from page 20)

the tree. These eggs hatch in a much shorter time than those of the first brood, but, because the rate of development of first-brood individuals varies considerably, the period over which the second brood develops is quite long.

In the southern part of its range, the leaf roller goes through three generations before late fall; but in the north there are two broods in a season. The division between the three-brood and the two-brood areas in New York occurs at the southern end of the Hudson Valley fruit belt. A partial third brood of leaf rollers was found there last summer, while the central and northern valley areas experienced only two broods, as did western New York. To the south, in the Cumberland-Shenandoah section, three broods were the rule.

Most of the damage is caused by the later broods which continue to feed on the fruit from the latter part of the summer until harvest. Even after picking, apples are attacked if left in crates in the orchard or when spread on the ground under trees to color. Injury takes the form of shallow feeding over a large, irregular surface area, most frequently at the stem end of the fruit. Other frequent points of attack are where two apples touch or where a leaf hangs against the fruit. Water loss from injured fruit is rapid, resulting in a heavy drop. Such fruit will not keep in storage and must be sold to processors for immediate use. Even this outlet is limited since the apple must be peeled deeply to remove all trace of infestation and there is a proportionately greater amount of waste.

What are the prospects for control of this pest? Fortunately, they are excellent. But once more we are exchanging free, natural control by parasites for expensive chemical control. The standard procedure in previous years was to apply lead arsenate in the petal-fall and one or more cover sprays, being careful to cover the undersides of the leaves where the first-brood worms feed. This, plus the control exerted by parasites on later broods, was sufficient to hold the pest in check.

This method fails where DDT is used to combat codling moth because these later sprays eliminate the parasites which attack the first-brood worms escaping the lead arsenate sprays, or their descendants in the later broods. To be effective, sprays against the first-brood worms must kill a greater proportion of the worms

AMERICAN FRUIT GROWER

than lead arsenate does. One hundred per cent control of first-brood leaf rollers is the goal, and some insecticides give almost that result when properly used. DDT, when applied against small first-brood worms, is highly effective, but, when used against later broods, gives only fair control at best. Parathion will kill a high percentage of leaf rollers in either the first or later broods, but this very poisonous material must be used with caution because of health hazards and possible injury to the tree.

Outstanding in effectiveness for red-banded leaf roller control is DDD, sometimes called TDE, a chemical similar to DDT. Available either as an emulsion or as a wettable spray powder, in both forms DDD, or Rhothane as it is known commercially, has given almost complete control of red-banded leaf-roller in both experimental tests and grower use in several parts of country during past season.

SPRING WEATHER

(Continued from page 23)

particularly in Washington, Oregon, and the Rocky Mountains.

The relatively dry area shown around North Dakota is expected to result from the failure of any persistent movement of moist air to reach that far north. Figure III represents a very favorable rainfall picture to the water-short areas of the West, parched after several dry winters. However, flood danger for Ohio and Mississippi valleys again looms.

It appears that there is a real threat of late frosts east of the Rockies. The dates of the latest frost threats expected throughout the United States are shown in Figure IV. The area south of any line on the map should not experience frost after the approximate date given. The line representing mid-February is very nearly the same as it is in an average year. The warm flows during the month should be strong enough to prevent serious frosts in lower Florida after this date. The late March line is shown dipping farther south than is usual in the eastern part of the country. This effect is the result of the strong cold flow expected through the East in March. The line for mid-April ordinarily goes through north Texas, Oklahoma, Arkansas, and Tennessee. It also is placed south of its normal position, again due to strong cold air blasts expected in this area during April. The mid-May and early June lines tend to approach their average position as the summer air currents begin to make their effect felt.

The subject of spring weather throughout the nation is a very broad one. Our analysis here can only indicate the general pattern as illustrated in the figures.

FEBRUARY, 1949



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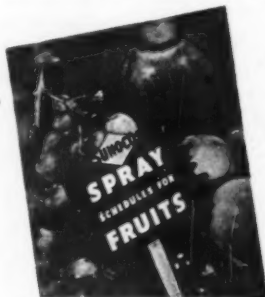
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Sunoco Spray, favorite with orchardists for well over a quarter-century, is easy to use. Just mix with water in the specified proportions. It is economical, too, when applied as directed. Send for your complimentary copy of this helpful booklet today.



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Town or _____

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PLEASE PRINT

NEW WEAPONS HELP IN PEST FIGHT

(Continued from page 18)

ple aphid is among those that have suffered, and the "woollies" are once more a major pest. Growers in the Northwest for years have had to control orchard mites, but with the help of predators, control was not difficult. Now, with DDT destroying the predators, good control with the old materials has often failed. But the aphids and mites are now succumbing to the superior killing powers of still other new materials.

Growers are learning a new word, "acaricide," which is a combination of the Latin *acarus*, a mite, and the familiar suffix *-cide*, a killer. One acaricide that may find wide use in 1949 is Parathion. This is a very poisonous material which should be handled with the greatest of care. The forerunners of this phosphorus compound, hexaethyl tetraphosphate (HETP) and tetraethyl pyrophosphate (TEPP), were hailed as wonder mite killers. Parathion has eclipsed them. Not only is its effect more lasting, but a season's use has apparently demonstrated that the Parathion wettable powder which is available to growers is less dangerous to handle and causes the spray operator less discomfort. It also seems to prevent heavy infestations of the woolly apple aphid from developing, and it is one of the most effective materials for controlling the pear psylla, which is becoming established in the Northwest.

With so many thousands of organic compounds to try, it will not be surprising if even better acaricides and insecticides will be developed. Some are already finding use for various purposes, and the fruit grower is asking what possibilities they have for him.

Benzene hexachloride is a powerful killer of aphids and some other insects. In the Northwest its use on fruit trees is practically limited to early summer applications for controlling the woolly apple aphid. Later use is not recommended because of its effect on the flavor of the fruit. For the same reason it is not recommended for stone fruits. Chlordane, which is very effective against some insects, seems to have no place in the northwestern fruit grower's schedule. Toxaphene is a cheap material which could be used in place of Parathion, as it controls the mites and pear psylla well, prevents development of the woolly apple aphid, and may even assist DDT in controlling the codling moth. A compound which the chemists call 1,1-bis (*p*-chlorophenyl) ethanone (DMC)



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The "Balanced Wet Bulb" control holds head pressure low, automatically giving the full benefits of power saving in cool weather and providing always full capacity for peak loads.

Niagara Aeropass design results from over fifteen years' experience condensing by air. It is completely trustworthy for year 'round operation. Users say, "It saves half the difficulties and labor of running a refrigeration plant."

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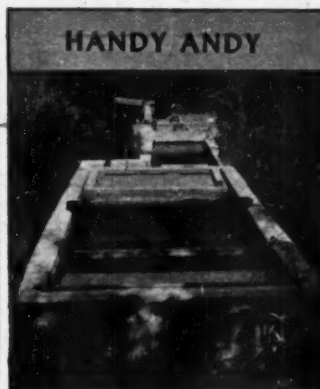
AIR ENGINEERING EQUIPMENT

FEBRUARY, 1949

has given excellent control of mites but it is ineffective against aphids or the pear psylla. Manufacturing difficulties have so far prevented it from coming on the market.

Two other materials have been particularly effective for controlling the European red mite, and they also hold the Pacific mite in check. One of these, bis (*p*-chlorophenoxy) methane (K-1875), is being used against the citrus mite in California, but it produces russeted spots on apples and thus cannot be recommended for use on them. The other one, lorol-2-thiazolinyl sulfide (IN-4200), has caused some injury to d'Anjou pears.

Little information is available on



HANDY ANDY

Trash-free irrigation lines are possible with a system of screens used by A. Polenske at his orchard near Yakima, Wash. Polenske has inserted three vertical screens spaced equal distance apart in his water box. The bottom half is regular galvanized door screening and the upper half quarter-inch hardware cloth. When the bottom section plugs, the water runs through the top into the next section. Each section is screened and as the water reaches the end, it is free from the debris which has collected in the boxes. The screens need cleaning about every two weeks except for the first two where heavy trash had to be removed every few days. But it takes only a few minutes, and Polenske never had to shut down his irrigation system to clean sprinklers.—Richard C. Bell.

the persistence of residues of the newer insecticides, including Parathion, Toxaphene, and DMC, on fruit or on the danger of such residues as may remain on fruit at harvest time. General recommendations cannot be made for the use of these materials until such information is available. Growers who wish to try these new materials should talk to the men in their local extension service about precautions to be observed in handling and using them.



Fruit Fungicides (341B and 341C)

Protect your profits against
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cherry leaf spot

The CRAG Fruit Fungicides are efficient protective fungicides. 341C gives outstanding control of apple scab and 341B is equally effective against cherry leaf spot.

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- It pours
- It sticks
- It protects

Here's why Magnetic "70" will be demanded by more growers this year to protect against apple scab, brown rot on peaches and blossom and stem blight on cherries.

IT POURS—New, improved Magnetic "70" has a free-flowing, creamy consistency and it may be added direct to the spray tank by washing through the screen.

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IT PROTECTS—With a fineness of less than 2 microns surface average diameter, Magnetic "70" disperses evenly over leaf and fruit surfaces and is extremely adhesive. It sticks through the most severe rain storms and protracted wet periods.

And remember Magnetic "70" Sulphur Paste is actually inexpensive. On a price-performance basis, it is the cheapest protection a grower can buy among the milder (non-caustic) fungicides. Your dealer is ordering his supply of Magnetic "70" Concentrated Sulphur Paste now. Ask him for complete information or write to our nearest office.

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Magnetic "95" Spraying Sulphur

A micro-fine (4 to 5 microns surface average diameter) dry wettable sulphur designed particularly for use in early cover sprays on apple, peaches and cherries.

Magnetic "90" Dusting Sulphur

A micro-fine (4 to 5 microns surface active diameter) dusting sulphur—ideal for use during rains or as an in-between-dust in a spray program.

DDT

Stauffer DDT 50% Wettable and Dust Concentrates.

Parathion

Stauffer's own concentrate formulations made from Thiophos Parathion—the new wonder insecticide.

341-C

Stauffer Fungicide 341-C for apple scab. Field tests indicate that red mites do not build up on apple trees sprayed with 341-C.

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SUCCESSFUL FOR SCAB

(Continued from page 28)

hydrated lime of fine grade. With 12 regular Speed sprayer nozzles per side and one-fourth the usual gallonage per tree, the coverage was spotted and irregular. These nozzles have a 6/64-inch hole. With identical nozzles except for a 5/64-inch hole, the gallonage was reduced by about one-third, the spray was slightly finer, and no serious plugging occurred. The 5/64-inch nozzles might be desirable for half-gallonage double-concentration sprays. With nozzles of the same design, but having holes of 4/64-inch or 3/64-inch, the plugging was serious.

In tests with special nozzles not currently available, two types offer some promise. In one type, the "flat-jet," coarse drops are thrown diagonally back against the airblast which converts them into a rather fine spray and carries them into the tree. In another type, the "whirljet," the liquid is discharged toward the tree. It is hoped that sizes and models may be selected that will produce sufficiently fine droplets for use with sprays four times the standard concentration, yet not be too easily plugged. If work now in progress goes favorably, special nozzles possibly may be offered for testing by the spring of 1949.

Conclusions

If a grower will carefully watch the deposit, especially in the treetops, it is believed that he would not be taking an excessive risk in 1949 to use double concentration, half-gallonage sulfur sprays against apple scab in the period before foliage is fully developed. Our tests do not provide evidence of the value of such sprays against insects. Certain risks would be involved in using potent insecticides such as dinitro materials, oils, etc., at double concentration.

Our work with four-times concentrations is preliminary and regarded as giving clues for experimentation by investigators or by growers on a small scale. Any fine, low-gallonage spray tends to carry poorly against wind and in summer to deposit an excessive load on the outermost foliage and fruits nearest the machine, since there is no run-off. Worth-while savings in cost of application may be possible, however, even with a reduction of 50 per cent in the water requirement of spring spraying against scab. It is doubtful if it will prove possible to get fine enough atomization with a low pressure pump such as used in the Speed sprayer to consider testing sprays more concentrated than four times the usual.

AMERICAN FRUIT GROWER

MATERIAL COST REDUCED

(Continued from page 28)

tion of the air stream.

Field tests in large Bartlett pear orchards having heavy foliage showed that the speed of the equipment in low volume spraying will range from 1.5 to 2.0 miles per hour in dormant applications to 0.8 to 1.5 miles per hour in foliage applications. The speed of

Comparative Dosages and Material Costs per Acre with Bulk and Low Volume Spraying

Material	Gallons Applied per acre		Material Cost per acre	
	Bulk	Low Volume	Bulk	Low Volume
Dormant Oil				
Tank Mix...	810	225	\$4.53	\$2.04
Lime Sulfur...	360	198	1.89	1.39
Wettable Sulfur				
.....	720	324	1.27	.87
Wettable DDT	1350	325	7.29	1.82

operation can be determined only by close observation of the amount of wetting on the bark, foliage, and fruit.

New Dusting Equipment

Most types of orchard dusters have depended upon a low volume of air at a high velocity for delivery of the dust materials. Some are of the manually operated, single nozzle, drift type, others have single or double fish-tail discharge heads. Most of these have been satisfactory only in small-sized trees. The only models that have proven satisfactory in large trees are the Masterfan No. 4 and No. 5, manufactured by the Masterfan Corporation, and these have a disadvantage in their size.

Under test at the present time are two models which use the same principle of a large volume of air at a low velocity, as is used in the new liquid sprayers. These dusters are built low and have precision-type feed into the air stream which makes for more uniform distribution of the dust material. Preliminary tests show that this new type duster will give not only better distribution of the dust but also more uniform deposits.



Masterfan type of orchard duster.

FEBRUARY, 1949

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It does *not* kill off the parasites of the red spider—and has proven exceptionally safe on the foliage of apples, pears and other trees. Spray with Dimite and protect your crop.

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APS

FRUIT DIET--1800 STYLE

By R. L. McMUNN

University of Illinois

DURING the past century the value of fruits and vegetables in the diet has become better understood. Dietitians and men of the medical profession, alike, know the importance and necessity of an adequate supply of these foods if normal health is to be maintained. This has not always been so. Until the value of vitamins was definitely proved and it was established that fruits and vegetables were good sources of certain vitamins, this class of food was generally looked upon as just another one that helped satisfy the appetite. Certain fruits and vegetables were considered good for this or that ailment; but for the most part the doctors depended upon herbs, spices, and the roots and bark of shrubs and trees as the principal plant ingredients in decoctions, electuaries, gargles, infusions, and ointments.

Since fruits and vegetables are now known to be essential to the diet, it will be of interest to learn how they were evaluated as a food more than a hundred years ago. For a brief insight into this interesting field we will quote from a book written by William Buchan, M.D., Fellow of the Royal College of Physicians, Edinburgh. Like most books of the day, the title was lengthy and read: "DOMESTIC MEDICINE, or a Treatise on the Prevention and Cure of Diseases by Regimen and Simple Medicines, with an Appendix, containing a dispensatory for the use of private practitioners, to which are added, OBSERVATIONS ON DIET; recommending a method of living less expensive, and more conducive to health than the present." The edition at hand was printed in New York in 1812. There was at least one earlier edition printed in England in 1798. "Domestic Medicine" may well have been a non-fiction best seller in the early 1800's. It is likely that it occupied a place on the fireplace mantle along with the family Bible and almanac in many a frontier cabin.

Let us turn to the chapter on "Of Aliment" to learn what the good Doc-

AMERICAN FRUIT GROWER

HISTORY OF HORTICULTURE

tor had to say about fruits and vegetables in the diet. Of apples, he states, they "are a wholesome vegetable aliment, and in many cases medicinal," but they "agree best with the stomach when eaten either roasted or boiled." When they agree with the stomach, cherries are "a wholesome fruit—and they are beneficial in many diseases, especially those of the putrid kind." Gooseberries and currants, when ripe, are similar to cherries, he wrote. The queen of fruits, the peach, he considered "not of very nourishing quality" but as "serviceable in bilious complaints." Apricots he considered even more pulpy than peaches and they "are apt to ferment and produce acidities in weak stomachs;" while strawberries were said to be "good against the gravel."

In the chapters on diseases, each of which is discussed from the standpoint of Causes, Symptoms, Regimen, and Medicine, are some very interesting remarks about the value or harmful effects of fruits and vegetables. One method of avoiding "nervous colic" is to "shun all sour fruits, acids, and austere liquors, etc." For certain types of headaches the patient is advised, "The diet ought to consist of such emollient substances as apples boiled in milk, spinnage, turnips, and such like." An excellent regimen for a person with jaundice "should be cool, light, and diluting, consisting chiefly of ripe fruits and mild vegetables; as apples boiled or roasted, stewed prunes, preserved plumbs, boiled spinnage, etc."

As a general summing up statement in regard to fruits and vegetables, Buchan expressed himself thus: "With regard to the proposition of vegetable food to that of animal, great nicety is by no means required. The vegetable part, however, where nothing forbids, ought certainly to preponderate, and I think in the proportion of at least two to one."

"I am no enemy of good fruit as an article of diet, but the greater part of what is used in this country by the lower orders of the people is mere trash. Fruit should be eaten in the early part of the day when the stomach is not loaded with food, and it never ought to be eaten raw till it be thoroughly ripe."

FEBRUARY, 1949

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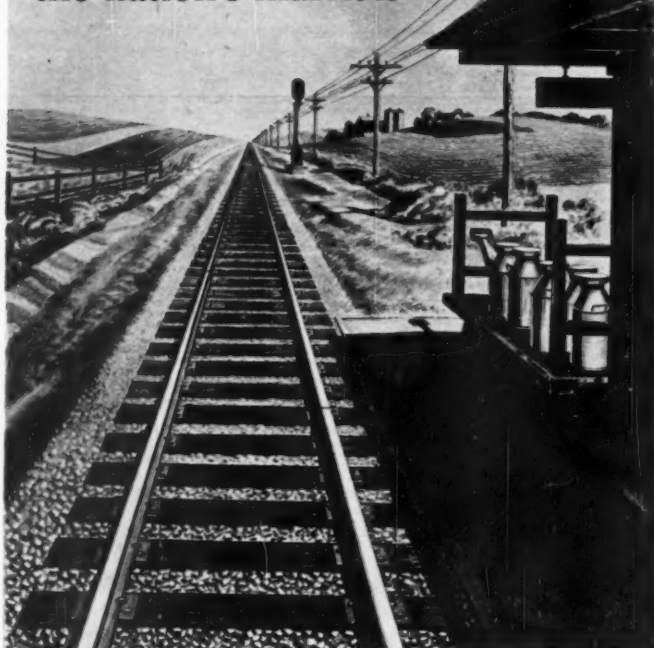
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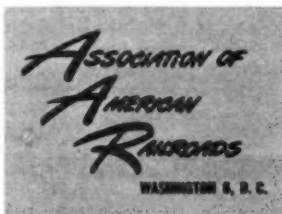
Last year, for example, the railroads helped move the greatest harvest ever produced in a single year by any nation. They also hauled the bulk of the other raw materials produced by our nation's farms, forests, and mines—as well as most of our manufactured products. And they handled the entire job for an average charge of only 1¼ cents for hauling a ton a mile.

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HOW TO STORE ORCHARD CHEMICALS

(Continued from page 19)

lose their potency more quickly at high than at low temperatures. The full story of the effect of temperature in the storage of the newer synthetic organic materials is yet to be learned. We know, of course, that early experience with DDT in oil subjected to low temperatures resulted in the adoption of auxiliary solvents. The matter of "breakage" in oil emulsions and "sludging" in lime-sulfur concentrations is reasonably well known. Aside from actual wetness, moisture effect is less specific. Moisture wrecks containers. Moisture causes lumpiness and poor physical condition of many dry spray materials.

Your insurance agent, if you have one, can tell you the type of spray materials you have on hand and how to store them. Many spray materials are inflammable. Oil and sulfur are known to everyone as being readily combustible. Oil seepage and oily rags are well-known causes of fires of "unknown" origin. Sodium chlorate weed killer is highly combustible. Any sulfur-containing spray material, and perhaps other organic spray materials, may also be combustible. Try to tell Texas City, Texas, that ammonium nitrate will not explode! The case of the Clermont County, Ohio, grower whose spray shed ignited from empty sulfur containers may have been an isolated instance; but "one never needs fire insurance until the barn is burning." In other words, no one knows what some mixtures will do even though information on pure chemicals is reasonably complete.

Another angle to the question of fire hazards in the storage of spray materials is the matter of gases driven off by such fires. "Firemen were hampered by chemical fumes," is a frequent observation in news accounts. The gases from the burning of the spray storage on an average fruit farm would defy an analytical chemist! The following quotation from the Arkansas State Plant Board News brings the matter up-to-date: "2,4-D acid in smoke from the recent Clarke Hybrid Corn Company's fire at Conrad, Iowa, was carried by a heavy wind over an alfalfa field which joined the plant area. About two acres of alfalfa were killed. Several gallons of 2,4-D in storage in the plant were consumed in the fire." What would have happened in a tomato, grape, or pear growing area!

Spraying programs change. Seasons are different. Crops change. Machinery changes. For any one of these and many other reasons it sometimes

AMERICAN FRUIT GROWER

becomes necessary to decide what to do with unwanted spray materials. Disposal of such materials is not always easy. Sometimes it is possible to sell or trade usable, unwanted materials. Lead arsenate, sulfur, copper sulfate, zinc sulfate, lime, are all examples of materials which can be used on soil in one way or another. When economic poisons are normally used, they are spread thinly enough to render them relatively safe. Find some safe use for unwanted spray chemicals whenever possible.

Burning unwanted spray chemicals for which a use cannot be found does not work well. Aside from the fact that many do not burn, there is the possibility of damage to surroundings from the gases generated. There is, too, in many cases, the matter of poisonous ashes. Take these unwanted spray materials and containers to a disposal area. Make sure the poisonous materials are handled so neither they nor their residues will be disturbed in the foreseeable future. Deep burial is the safest way. A well-managed city dump is sometimes available. In any case, think! It is the only way to avoid possible regret when dealing with many of these left-over materials. Remember—practically all pesticides are poisonous.

From these observed facts and supporting knowledge, it may appear that safe, proper spray material storage is complex. So is the storage of horses, automobiles, and honey bees, but people manage all of them profitably. Proper storage of spray materials reasonably free from the difficulties listed can be reduced to a straightforward routine. The suggestions here presented will take care of a large percentage of the difficulties, if followed:

1. Store spray materials in a well-ventilated, dry place that will not be too hot in summer nor too cold in winter. Some materials break down if too hot, others if too cold. Take special precautions with such materials. Dry means dry. Make it convenient to use the materials by providing shelving racks or sufficient floor space.

2. Know what the labels say. Federal and State labeling laws are specific and are well observed on all standard materials. If for any reason you repack or a label is lost, you owe it to yourself to label your package explicitly and legibly. In case the old eyes aren't what they used to be, get a reading glass or have someone read the label to you.

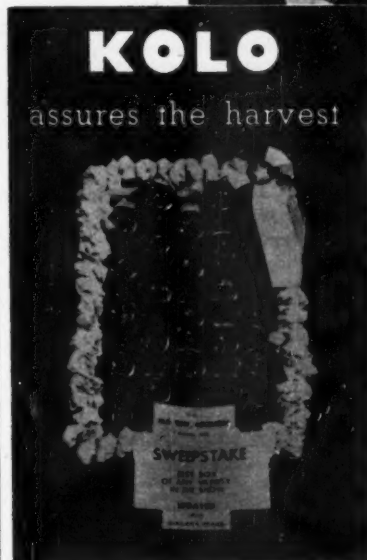
3. If you observe suggestion No. 2, you need not depend on your memory, your eyes, or your nose to identify spray chemicals. They are unreliable for identifying chemicals.

(Continued on page 52)

FEBRUARY, 1949



THE BEE SETS THE FRUIT



KOLO PROMOTES THE BLOOM

KOLOFOG, KOLODUST, KOLOSPRAY

give the kind of fungus protection that fruit trees like—mild, adhesive and highest scab prevention qualities. Kolo allows the trees to function normally producing clean fruit and healthy fruit buds.



NIAGARA CHEMICAL DIVISION

FOOD MACHINERY AND CHEMICAL CORPORATION

Middleport, New York

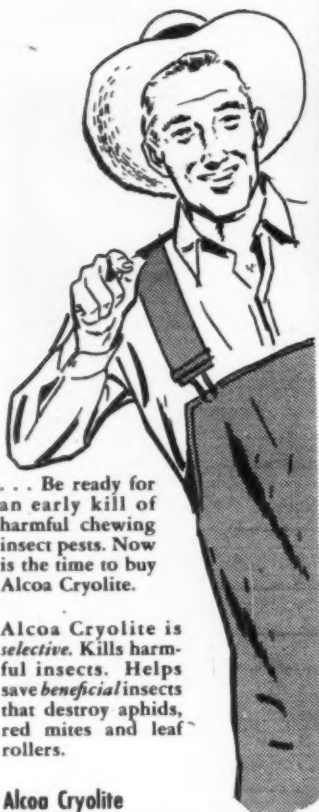
Richmond, Calif. • Mt. Vernon, Wash. • New Orleans, La. • Greenville, Miss.

Jacksonville, Fla. • Tampa, Fla. • Pompano, Fla. • Marlinton, W. Va.

Canadian Associate: NIAGARA BRAND SPRAY CO., LTD., Burlington, Ontario



Get set **Now** for
Better Insect Control!



... Be ready for an early kill of harmful chewing insect pests. Now is the time to buy Alcoa Cryolite.

Alcoa Cryolite is selective. Kills harmful insects. Helps save beneficial insects that destroy aphids, red mites and leaf rollers.

Alcoa Cryolite

- doesn't affect soil balance.
- has negligible abrasive effect on equipment.
- sprays or dusts freely.

Write for the dusting and spraying chart now. It's free!

ALUMINUM COMPANY OF AMERICA CHEMICALS DIVISION

1737 Gulf Building Pittsburgh 19, Pa.



Packed in 50-lb. bags, 6-lb. bags and handy 1-lb. shaker cans.

Alcoa Cryolite Insecticide

MASTER CONTAINERS FOR PRE-PACKAGING

THE PROBLEM of shipping damages with fruit in mesh bags was solved this past season by the packing associations affiliated with the Mutual Orange Distributors in California. They used wirebound master containers for shipping oranges in mesh bags.



Pre-packed mesh bags of citrus fruit being placed in wirebound master containers.

More than 20,000 tons of oranges were shipped and the loss from crushing, bruising, and other damage was practically negligible.

Henry Bosch, manager of the Orange Cooperative Citrus Association, said that the extra packing cost was more than offset by the prices brought in major markets because of the eye-appeal of the undamaged fruit. He also stressed the fact that more fruit can be sent at one time because the master containers can be stacked higher than unprotected bagged fruit and the containers allow better circulation of air throughout the entire load during transit.

HOW TO STORE ORCHARD CHEMICALS

(Continued from page 51)

Furthermore, there are not many on-the-spot tests that can be applied. Lime-sulfur can be tested with a hydrometer if you have a chart for translating the readings into strengths. Lumpiness in dry materials is revealed by trying to make a thin slurry (batter) with water. If free oil appears on the surface when emulsions are diluted, better check. This observation does not apply to "ready mixes." It is a good idea to check in all cases of this kind with your supplier or your county agricultural agent.

4. Keep the fire, contamination, decomposition, and other hazards in mind all the time.

5. "Muck out" the spray storage periodically and dispose of unneeded chemicals, used containers, and junk. Cleanliness and order will pay off by permitting better timing of your operations because you can readily tell what and how much spray material you have available.

SEYMOUR SMITH

PROFESSIONAL PRUNERS



Lopper and hand pruner cutting parts drop-forged in one piece. Keen precision ground blades. Dual cutting action for clean, quick healing cuts. Tree pruner's "center-cut" blades slices between two strong side supports. Branch is firmly gripped, quickly cut. Every detail "professionally" correct.
No. 125 9" long, \$4.00—No. 124 8" long, \$3.50—No. 528 28" long, \$4.95
No. 111-18 complete with 18' pole—\$15.00

At your dealer's or give us his name.
West Coast prices 10% higher
AT NO EXTRA CHARGE
40 pages of reliable pruning information by noted horticultural editor without charge to every buyer of Seymour Smith shears, or sent postpaid for 25c.
SEYMOUR SMITH & SON, Inc.
900 U Main St., Oakville, Conn.

BURKS WATER SYSTEMS Last Longer



You'll want a BURKS Dual Purpose Super Turbine Water System because of its LIFE-LOK feature. It'll outlast any other water system by many years—give you more water—at lowest cost.

For deep or shallow wells
BURKS Dual System gives you completely automatic service from deep or shallow wells. New folder explains this, also LIFE-LOK feature. Shows why BURKS is best buy. Self-Priming—One Moving Part—Dependable Service. Write for literature—prices.

DECATUR PUMP CO., 10 E. ST., DECATUR 70, ILL.

BEES

Don't be afraid of bees. We furnish books, magazines, bees and hives. Large factory selling direct saves you money. Quick shipment from large stocks. We operate 1,500 colonies and answer questions. Ask for Catalogue F.

Walter T. Kelley Co., Paducah, Ky.

AMERICAN FRUIT GROWER

Corona Products



ARSENATE OF LEAD

MICRONIZED* SULFURS (Wettable and Dusting)

50-50-W (Micronized* wettable powder containing 50% DDT)

3% DDT DUST

5% DDT DUST

*Trademark Registered by The
Micronizer Co., Moorestown, N. J.



Corona Chemical Division

PITTSBURGH PLATE GLASS COMPANY

PAINT • GLASS • CHEMICALS • PLASTICS • BRUSHES
MILWAUKEE 2, WISCONSIN

FEBRUARY, 1949

IN THE NEWS

ROY MAGRUDER

Dr. Roy Magruder has been recently appointed as assistant to the administrator of the Research and Marketing Act, succeeding the late Dr. C. O. Bratley. He will be concerned with RMA projects on fruits, vegetables, and tree nuts and will work closely with the RMA committees established under the Act to represent producers and industry on citrus, deciduous fruit, vegetables, and tree nuts. Dr. Magruder was formerly principal horticulturist in the Bureau of Plant Industry at Beltsville, Md.



Roy Magruder

I. G. ROSS

Food Machinery and Chemical Corp. recently announced the appointment of I. G. Ross as general sales manager of its John Bean (Western) Division. He succeeds Ralph W. Cook who resigned as of October 1. Ross has been with this division, which manufactures sprayers, dusters, and fruit packing equipment, since 1944 in the capacity of sales supervisor.



I. G. Ross

RUSSELL COLEMAN

New president of the National Fertilizer Association is Dr. Russell Coleman, director of the Mississippi Agricultural Experiment Station. He succeeds Maurice N. Lockwood who has resigned to become vice-president of the International Minerals and Chemical Corp.



Russell Coleman

Dr. Coleman served as professor of soils at Miss. State College and associate director of the Station.

GEORGE GRAVES

George Graves of Boston and Martha's Vineyard, Mass., has received the James R. Jewitt Award for 1948. This award is presented annually by the Arnold Arboretum of Harvard University to the individual who has made the most significant contribution to the improvement of the native beach plum, or who, through the development of beach plum products, may have made contributions of social significance.



George Graves

P. L. HAUSER

At the Quarterly Meeting of the National Sprayer & Duster Association, P. L. Hauser was elected to membership on the Executive Board. He is general sales manager of the Lowell Mfg. Co.



P. L. Hauser

In anticipation of the 1949 season the member companies look for an increasing demand for spraying and dusting equipment by home owners, farmers, the food processing industry, and others.

FRUIT

PRESSURE TESTER



PATENTED

PEACHES APPLES PEARS

The model 30 tester is a recognized method of testing, in pounds, the maturity stages of apples, peaches and pears in accordance with tables set forth in circular No. 627 issued by the U. S. Dept. of Agriculture.

Model 30 is acid resistant and sturdily constructed for maintained accuracy. Complete information upon request.

TESTERS
FRUIT PRESSURE TESTERS
—Special Instruments
and Experimental Work—

D. Ballou Mfg. Co.

Established 1885
619 H Street N. W., WASHINGTON 1, D. C.

WISCONSIN Heavy-Duty Air-Cooled ENGINES



Engine Horsepower on the farm, no matter how it is used, represents your greatest farm-operating asset, next to the land itself. It also represents an important cost item. The value of any engine, therefore, should be figured on a basis of the total number of Horsepower Hours of Service it will deliver during its lifetime.

It is on this basis that Wisconsin Heavy-Duty Air-Cooled Engines offer you the greatest economy. Because of their heavy-duty design and construction in every detail, you can depend on these fine engines to keep on going day after day, month after month, year after year . . . delivering the MOST H.P. HOURS of on-the-job service, with the least amount of servicing and maintenance cost. Isn't that what you want?

When you invest in power-operated farm equipment . . . LOOK AT THE ENGINE AS WELL AS THE MACHINE! If it's

"Wisconsin-powered" you can take it for granted the engine will last as long as the machine, and possibly longer.



Wisconsin Air-Cooled Engines are available in a complete range of types and sizes — single cylinder, 2-cylinder and V-type 4-cylinder, from 2 to 30 hp. Ask your dealer about Wisconsin Air-Cooled Engines and Wisconsin-powered farm equipment. And write for free, illustrated pamphlet.



4-cylinder single Cyl.
2 to 5 hp.



Single Cyl.,
4 to 9 hp.



2-Cylinder
7 to 13 hp.

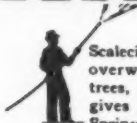


V-type 4 cyl.
13 to 30 hp.

WISCONSIN MOTOR Corporation
MILWAUKEE 14, WISCONSIN

World's Largest Builders of Heavy Duty Air-Cooled Engines

KILL SCALE.



Scalecide controls more kinds of overwintering insects on your trees, shrubs and vines — and gives them a healthy start for Spring growth. It is the safest and most effective dormant or delayed dormant spray.

This complete dormant spray kills scale, red mite, aphid, bud moth, case bearer, pear psylla, and over-wintering codling moth. It also helps control brown rot cankers, collar rot, and peach leaf curl.

Get Scalecide from your dealer now — and be ready to spray before the foliage starts in the Spring. Easy to use, safe — and economical. One gallon makes 16 gallons of spray. Available in qts., gals., and 5, 15, 30 and 55-gal. drums.

B. G. PRATT CO.
163 River Street, Hackensack, N. J.

There's a Pratt Spray for Every Need

OX • DOT SPRAYS • PARA-SCALECIDE • SPRAY CATALYZER
PRATT'S FRUIT TREE SPRAY • PRATT'S GARDEN & ROSE DUST
SULFOCIDE • SURFISPRAY • PRATT'S 637 INSECT REPELLENT

**RED MITE
APHIS
BUD MOTH
CASE BEARER
and other pests**



STATE NEWS

(Continued from page 30)

Housewife didn't find it economical to can peaches last year; that the family food budget was squeezed by other high-priced fruits; and that peaches aren't essential for survival in times of high prices.

Peaches rank fourth in volume of fresh fruit sales in the Kroger stores, Mr. Gunner stated, representing 8.8 per cent. Oranges rank first, or 36.5 per cent; grapefruit second, or 12.9 per cent; and apples third, or 10.4 per cent.

Can Virginia, or the U. S. except to recapture the apple export market? Fred A. Motz, fruit specialist, Office of Foreign Agricultural Relations of the USDA, said that not until foreign countries have sufficient hard currency to buy apples and other fruits outright can American growers expect to sell their products abroad in any appreciable quantity.

A round table discussion on frost control in orchards proved to be a lively one, with William F. Young, Sr., Staunton; W. L. Andrews, Jr., Roanoke; J. Kenneth Robinson, Winchester; and J. Flint Waller, Staunton, taking part. Mr. Rob-

WANTED—GIANT APPLES

Fruit breeders are seeking giant apple sports. Once considered orchard curiosities, giant apples are now regarded by plant scientists as valuable breeding material. So be on the lookout for giant sports in your 1949 crop. They are easily recognized because they are twice as large as the normal apple of the same variety and are somewhat flatter in shape. Send samples of the apples to the fruit specialist of your State agricultural experiment station or to Dr. George M. Darrow, Plant Industry Station, Beltsville, Md.

inson in April, 1948, heated a low 35-acre block of Yorks in his 325-acre orchard. Due to frost this block had produced only two crops of fruit in the past 11 years. Three nights of heating, at a cost of \$1.65 per hour per acre, resulted in one of the largest crops ever harvested in this block. —E.B.

IOWA—The two and one-half day meeting of the Iowa Fruit Growers Association at Ames, November 17-19, was crowded with timely and worth-while topics. Growers made immediate request for copies of the talks. As they become available, the more important discussions will appear in the monthly Newsletter.

President Wheelock Wilson gave growers of 30 to 40 acres of fruit, who sell their production direct to customers at the orchard, the benefit of the sales psychology he employs in disposing of his strawberries, raspberries, and apples. Give a prospective customer a sample of fruit and he will be transformed into a purchaser and friend. Mr. Wheelock stated. Repeat customers, who will bring friends and relatives with them as prospective customers, are assured, he stated, where heaping baskets of well-graded fruit have been sold them.

Out-of-state speakers included Dr. L. F. Steiner of the USDA in Vincennes, Ind., and Dr. R. H. Roberts of the University of Wisconsin.

In order to determine the present pro-

AMERICAN FRUIT GROWER



New officers, New Jersey State Horticultural Society, left to right: Ernest S. Race, Sr., Belvidere, president; Arthur J. Farley, New Brunswick, sec.-treas.; and Lewis W. Burton, Haddonfield, vice-president.

ducing and recently planted fruit acreages, particularly since all effects of the Armistice Day freeze now have shown up on the surviving trees, two recommendations were passed: 1) That the association undertake to survey the present extent and value of its own industry in the State, and 2) that a marketing and variety committee (one committee) be appointed by the president to study these two matters and submit their findings and recommendations at the next annual meeting.

All officers were re-elected, as follows: Wheelock Wilson, president; R. S. Herrick, vice-president; and William H. Collins, secretary-treasurer. W. R. Kime, Victor Felter and the officers will serve as directors.—Wm. H. Collins, Sec'y, Des Moines.

UTAH—The annual meeting of the Utah State Horticultural Society was one of the most successful in its history. In spite of the freezing temperatures and the abundance of new snow the meeting was well attended.

The list of speakers was outstanding and each one gave a real message to the growers. Dr. T. L. Martin of the Brigham Young University, Provo, caused considerable discussion as a result of his talk on soil fertility as related to fruit growing. Dr. Martin pointed out the relation of soil nutrients to the health of the race and emphasized the importance of maintaining the soil at a high state of fertility and with a high content of organic matter. The importance of manures to the biological activity in the soil was a point of some importance in Dr. Martin's discussion.

Dr. E. J. Newcomer of the USDA at Yakima, Wash., enlightened the growers on the control of insects with new and old insecticides.

Dr. W. P. Thomas of the Utah Agricultural College, Logan, emphasized the fact that Utah does not produce enough of all fruits to satisfy the local market, which he considered a distance of 100 miles from Salt Lake City. If every consumer in the local market used as much fruit as the average person in the United States, Utah's production would fall short of supplying this demand for all fruits except peaches and sweet cherries.

A highlight on the program was a panel discussion led by G. A. Carpenter of the college at Logan. This panel was related to the marketing of Utah fruits and growers and co-operative managers as well as commercial shippers aired their views. The net result was a resolution on the part of the members of the society to use their influence to effect a State-wide marketing organization so that the marketing of Utah fruits could be established on a more uniform and orderly basis.—A. Stark, Sec'y, Logan.

(Continued on page 65)

FEBRUARY, 1949



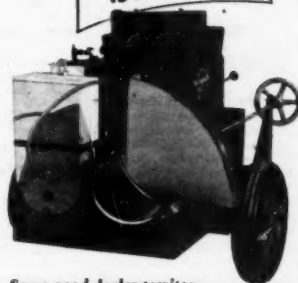
Turbulent Air...

SPRAYS--DUSTS FOLIAGE MORE THOROUGHLY, FASTER!

One man can dust over 20 acres of orchard an hour with a BUFFALO TURBINE SPRAYER-DUSTER.

Turbulent, swirling air under high velocity created by the Buffalo Turbine-Sprayer-Duster's exclusive axial flow blower, atomizes spray and dust concentrates into a fine mist that's 100% air-borne (needing only about 1/10th the usually required water).

This turbulent air agitates densest foliage, exposing every leaf to dust or spray. Less water cuts total weight. This permits working over soft ground and makes handling easy. High blower capacity provides a great range (even drives against moderate headwinds). Saving of 50% spraying and dusting time and labor quickly pays for the lightweight, ruggedly-built Buffalo Turbine Sprayer-Duster.



Some good dealer territory is still open. Write for details.



BUFFALO TURBINE

Agricultural Equipment Co., Inc.

Dept. C
Gowanda, N. Y.

Manufacturers of the Original Mist Sprayer-Dusters

The Heart of the Buffalo Turbine Sprayer-Duster is the new Axial-Flow Blower



THE Complete PEACH SPRAY

everything in ONE PACKAGE
... NO WASTE—NO BOTHER

(PROPYLENE)

DI-CHLOR-MULSION

Kills peach tree-borers.



Farm and Orchard Chemicals

Concentrates and Formulations of All New Organic Insecticides

Woolfolk Chemical Works, Ltd., Fort Valley, Ga.

**OVER A
DECADE**

*of
Safe, Satisfactory*

dinitro dormant spraying!

**NOW!
ELGETOL-318**

This new type ELGETOL is now available in limited quantities for experimental work. ELGETOL-318 is an easy-to-handle true solution which in preliminary tests has shown good control of red mite plus the other pests controlled with regular ELGETOL.

● ELGETOL is doubly safe! It is a non-caustic dinitro dormant spray that can be applied without fear of skin irritation. And it's been proved safe on crops for the past ten years...with or without oil it's the safest, most effective form of dinitro to use right up until the bursting bud stage.

ELGETOL controls scab, leaf spot, aphid, scale, crown gall and bud moth on apples, peaches, cherries, prunes, plums and almonds.

STANDARD AGRICULTURAL CHEMICALS, INC.

HOBOKEN, NEW JERSEY

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GREENING'S-BIG-NURSERIES-

**TREES
YOU CAN
TRUST**

MONROE, MICHIGAN

**BORN 1850—
STILL GROWING—
AGE—STABILITY—
PROGRESS**

**NINETY-EIGHT
YEARS OF
SATISFACTORY
SERVICE**

(CATALOG ON REQUEST)

THE GREENING NURSERY CO.

P.O. Box 605, Monroe, Michigan

OTTAWA POST HOLE DIGGER

There is no other like it!

The digger you have been waiting for. Quick hitch to any tractor with power take-off. Fastest power sugar return. Heavy big-spread two light sugar. Safety clutch prevents damage, almost makes shag pine. Strictly one-man machine. Trench digging attachment. Write for digger facts, new low prices.

OTTAWA MFG. CO., 5-932 Elm St., Ottawa, Kan.



Patents Pending

HALCK FLAME GUN KILLS WEEDS

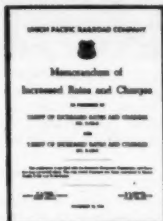


KILL WEEDS, crab grass, Canada thistle—stalks, seeds and roots. Destroy leach, caterpillar nests, diseased trees, grasshoppers, chicken bugs, etc. Clear irrigation ditches, split rocks, burn tree stumps. Sterilize poultry houses, henhouses, barns. Use as portable home forge. Melt ice, three pipes, half-japanese. Burns only 6 1/2 acetylene, 14 1/2 air! Thousands satisfied users. 2 models. Write for FREE CATALOG.

HALCK MFG. CO., 45 Tenth St., Brooklyn 15, N.Y.

NEW FOR YOU

Freight Rates Booklet



Here is a new, easy-to-follow booklet on important changes in freight rates. Every grower and shipper can quickly and accurately figure his own freight costs. An attached map marking different freight areas shows at a glance the cost of getting fruit to market. For your free copy write to Union Pacific Railroad, 15th and Dodge Streets, Omaha, Nebr.

Cuts Trees-Mows Weeds



Called the Farm Easy because it takes the cussedness out of orchard tree cutting and allows for close to tree cover crop and weed cutting, the Farm Easy is lightweight and can be used as easily as a vertical or horizontal saw, weed, or grass cutter. For further details write the Mid-States Sales, Inc., Muncie, Ind.

Aqua-Jet Spray Nozzle



Here's a new spray nozzle with a new principle — impinging streams from two adjustable jets break up the spray into minute droplets outside the nozzle. Adjusting the jets changes the spray pattern, and the operator can easily control the angle of impingement thus determining the width and projection of the pattern. Full capacity of the nozzle is available in both the stream position and fog position. Called the Aqua-Jet Spray Nozzle, this product is manufactured by Hurst Industries, San Jose 6, Calif.

AMERICAN FRUIT GROWER

- CHAIN SAW
- AIR COMPRESSOR
- SPRAY NOZZLE

McCulloch Chain Saw



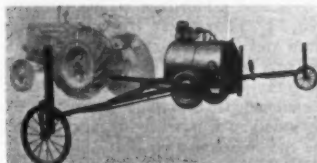
The grower has long needed an all-purpose chain saw. Unproductive trees must be cut down. Forest corridors must be cut for air drainage, and thousands of other cutting jobs need doing quickly and efficiently. The new lightweight McCulloch chain saw is ideally designed for the orchardist. For further details, write McCulloch Motors Corp., 6101 W. Century Blvd., Los Angeles 45, Calif.

Tokheim Air Compressor



Fruit growing is made easier, cheaper, and more productive with the new sturdily designed Tokheim compressor. Built for power pruning, greasing, tire inflation, spraying, and dusting, this unit is fast becoming a necessity in every orchard operation. Write Tokheim Oil Tank and Pump Co., 1128 Wabash Ave., Fort Wayne, Ind.

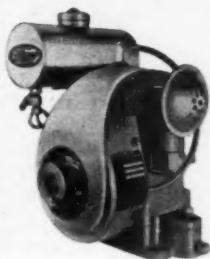
The Hanson Line



A sprayer for every agricultural purpose. Ruggedly constructed, orchard tested, economically operated and priced, the 1949 Hanson line will become a favorite with growers everywhere. A reference book containing chemical definitions and instructions for spraying is obtainable free upon request to Howard Hanson & Co., Beloit, Wisc.

FEBRUARY, 1949

LAUSON POWER is DEPENDABLE Power!



- You can depend on Lawson power — a real work-horse for spraying, dusting, cultivating and countless other farming operations.
- Sizes from $\frac{1}{4}$ to 5 H. P. 4-Cycle, Air-Cooled.
- Light weight — instant starting — economical operation.
- Machined mounting pad on crank case for direct mounting of pumps, generators, etc.

NATION-WIDE LAUSON SERVICE
AVAILABLE EVERYWHERE

Dept. AG, The LAUSON Company, New Holstein, Wis.

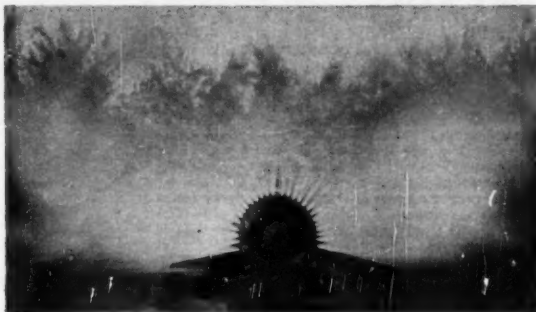
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In Canada:
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ENGINE BUILDERS FOR OVER 50 YEARS!

ROBINSON AIR-O-SPRAY[®]

SEND
FOR FREE
COST
ANALYSIS
CHART
AND
FOLDER
TODAY



Air-O-Spray puts the spray where you want it

One Grower Saved \$11,574 in One Season

"I am enclosing a tabulation of my comparative spray cost in 1948 with the Robinson Air-O-Spray rig. I did not do any hand spraying but the data on gallons per acre and labor costs are from 1947 and would have been the same in 1948 if I had sprayed by hand. My actual saving on my 75 acres of fruit was \$11,574.00. I operate more acreage than the 75, but the remainder is on a percentage basis. All my fruit isn't packed yet, but the cullage is no heavier than it has been in the past years. 2-5% culls from all causes is what the apples have been running."

(Signed) RICHARD MAULTSBY, Selah, Washington, Nov. 6, 1948

ADJUSTABLE VANES PROVIDE POSITIVE CONTROL

Only Air-O-Spray offers you adjustable air vanes and orifice nozzles for absolute pattern control. Air-O-Spray meets all spray requirements for fruits, nuts, vineyards, row crops, hops. One man on the machine and one man on the supply tank truck can spray 30 to 40 acres a day!

ROBINSON FAN CORP.

Box 306, Gilroy, California

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*Patents
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AIRVEYORS
DEHYDRATORS

• SPRAY RIGS •
• CROP DRYING SYSTEMS

DUSTERS



ATKINS No. 18 Folding Pruner

**CUTS
FAST**
Fits Easily Into
Your Pocket

ATKINS

It's amazing how much more pruning you'll get done with this pruner—and how much easier you'll do it! Folds down to fit easily into your pocket; you can carry it with you all the time. When you see a pruning job that needs doing you can do it right then. Polished "Silver Steel" peg tooth blade cuts tough limbs lightning-fast on the pull stroke. Beech handle is fully lacquered. Twelve-inch length. Ask your hardware dealer to show you the Atkins No. 18 Folding Pruner next time you are in his store.

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E. C. ATKINS AND COMPANY
402 S. Illinois Street, Indianapolis 9, Indiana



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SCARFF'S Berry Plants

Choice varieties for commercial and home planting. Strong sturdy stock, professionally produced, rigidly inspected. Low prices in quantity lots.

STRAWBERRY PLANTS—New Robinson, Sparkle, Temple. These are the finest new varieties.

RASPBERRY PLANTS—Registered and State Certified.

BLUEBERRIES—delicious fruits almost as large as grapes.

RED LAKE CURRANTS—FOORMAN GOOSEBERRIES.

FRUIT and NUT TREES—complete offering in both Standard and Dwarf Stock.

GRAPE VINES—BOYSENBERRIES.

RHUBARB—New Valentine All Red, sweetest flavor and finest for freezing.

Information on request. State varieties and quantities wanted.

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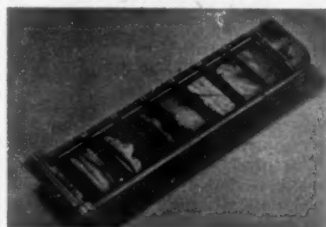
Members Ohio State Horticultural Society for over 50 Years



PREDICTING WEATHER

You can't change the weather, but now it's possible to predict what it will be with the new Weather Guide developed by Dr. Irving P. Krick, 1276 E. Colorado St., Pasadena 1, California, author of the long range weather forecast in this issue of AMERICAN FRUIT GROWER on page 22.

The instrument is simple, and the weather can be predicted for a 24-



hour period with a high degree of accuracy. Predictions are based on clouds and wind, which are the chief factors affecting short weather periods. "Signs in the sky" indicate what the coming weather will be and also whether a storm will move faster or slower, decrease or increase in intensity. As the cloud pattern changes or the wind shifts, the forecast can be adjusted accordingly.

BOOKLETS AND FILMS

● **Detailed plans** for four different farm workshops have been printed in a two-page bulletin by the James F. Lincoln Arc Welding Foundation. The bulletin, entitled "Setting Up the Farm Workshop," is available from the Foundation.

● **Available from the Newgren Co.** for showing to farm groups is the movie, "Revolution in Pleasantville," which shows the latest developments of the Jeep.

● **"Chlordane Kills DDT Resistant Flies"** tells the story of experiments made by the New Jersey State Agricultural Experiment Station with DDT and Chlordane. This bulletin, No. 742, is available from Julius Hyman and Co.

● **Dust and spray dilution tables** and directions for the proper use of Penco Benzene Hexachloride products are included in a new eight-page booklet by the Pennsylvania Salt Mfg. Co.

● **"Isotox" and "Vapto-XX"** are two bulletins by the California Spray Chemical Corp. which describe these products and their uses as insecticides.

● **The uses and functions of the "VA" series of Case tractors** are described and illustrated in "Proved Power In a Smaller Package," a catalog obtainable from the Case Tractor Co.

Standard RIDE on WALK
GARDEN and SMALL FARM Tractors
Plow Seed Sowing Cultivate Mow Hay and Lawns
Powerful 1 and 2 Cylinder Tractors for Small Farms, Gardeners, Florists, Nurseries, Fruit and Poultrymen.
FOUR MODELS
Simple Power for Field, Haying and Truck Crop Tools, Run Pumps, Saws and Belt Machines.
Steel or Rubber Tires High Wheels—Enclosed Gears
EASY TERMS
Write for Easy Paying Plan and **Free Catalog**
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Spray easily—Spray thoroughly. One man can spray and drive with.
HAMILTON SWIVEL GUNS
Write for literature
W. L. HAMILTON & CO.
Bangor, Mich.
Spray guns of all types—30 years' experience

NATIONWIDE FRUITS

(Continued from page 41)

minutor-extractor is patented and the whole process is available to other canners for making a similar product, states *Food Industries*. The equipment also handles the excess pulp, which is treated for use in sauces and other by-products.

It is pointed out by *Food Industries* that taste preferences for juice vary according to geographical location. New Yorkers, for example, are said to prefer a juice with a distinct tang. The British, because of scarcity of sugar during the war, are said to have developed a preference for foods with lower sugar content than is demanded by the American market.

- Six varieties accounted for over three-fifths of the commercial apple crop in 1948, or 55.9 million bushels. The 1948 commercial crop was estimated by the USDA at 90,288,000 bushels, or 20 per cent less than the 1947 crop.

In order of importance the leading varieties were: Delicious, 18.6 million bushels; Winesap, 10.2 million bushels; McIntosh, 8.6 million bushels; Jonathan, 6.7 million bushels; Rome Beauty, 6.3 million bushels; and York Imperial, 5.5 million bushels.

In comparison with 1947, York Imperial production was up 37 per cent and is the only important variety which showed an increase. Most Yorks are grown primarily for processing in the Appalachian area, where the 1947 crop was very short.

- Cautious growers will keep their spraying and dusting equipment in tip top shape during spraying season, if they heed the advice of Louis Titus of the Nevada Extension Service. They will also keep on hand replacement parts most likely to be needed, in order to avoid costly delays if the equipment breaks down.

Since insecticides may be injurious to rubber and metal parts, the sprayer should be cleaned after each day's use by running water through it continuously until the water comes out clear. This is especially true where 2,4-D is used. A small amount of a toxic chemical left in the sprayer which is later used for insecticides or fungicides may prove exceedingly dangerous to sensitive plants. In some sections the suggestion is made to use separate equipment for applying 2,4-D for weed control.

Dusting equipment may be cleaned by emptying the hopper and distributing (Continued on page 60)

RAISE BETTER FRUIT... RAISE YOUR INCOME



Dobbins SPRAYERS POINT THE WAY!

ALL-PURPOSE SPRAYERS FOR EVERY JOB... The sturdy 50 gallon power sprayer shown opposite, just one of many units offered by Dobbins, is designed for easy one-man operation. A boom attachment is available for weed spraying. Model 3275, shown below, is a new trailer-type, power take-off sprayer, which may be drawn by tractor, jeep or truck. Dobbins complete line includes trailer-type sprayers of 125 and 250 gallon tank sizes, with a pressure range from zero to 400 pounds... power take-off models, complete with pump and fittings... gasoline engine models... all made to deliver up to 7 gallons per minute. Dobbins also makes a full line of booms with pumps, for mounting direct to tractor. Deluxe models feature adjustable nozzle spacing. Learn now about Dobbins complete line of hand and power spraying equipment.

WRITE NOW!

for free literature and name of nearest dealer. Do this today! Learn the advantages Dobbins offers in low-cost, efficient spraying.



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DEPARTMENT 206, ELKHART, INDIANA

A COMPLETE LINE OF HAND AND POWER SPRAYERS AND DUSTERS

Dobbins
Superbilt
SPRAYERS DUSTERS



Proven
Quality
FUNGICIDES

DEMAND

That Tennessee Tri-Basic Copper Sulphate be used when buying copper dust or spray mixtures.

TENNESSEE
TRI-BASIC
COPPER SULPHATE

"MICROGEL"

For a long, long time we have supplied the nation's growers with fungicides of superior quality. For effective control of Scab and Melanose, Tennessee Tri-Basic Copper Sulphate or Microgel is especially recommended. These superior fungicides will control these plant diseases most effectively, producing healthier plants and increased citrus production — can be used as dust or spray. Use as directed.

For Free literature on fungicides and their proper uses, write to TENNESSEE CORPORATION, Grant Building, Atlanta, Georgia.

TENNESSEE **TC** CORPORATION
Atlanta, Georgia Lockland, Ohio

POLLEN

SMALL SIZES—POOR QUALITY RESULT from LACK of Cross Pollination

Crossing will increase size and Quality
of Self Fertile Varieties and
Self Sterile Varieties

Try the New Bee Hive Insert

Pollen prepared for all methods of use.

Try the New Pollen Loaded 12-Gauge Shotgun Shells

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OTTAWA TRACTOR SAW

300 Cuts Per Minute
Make money sawing wood. Use Ottawa—fastest cutting. Cuts large, small logs easiest way. Fells trees. One man operation. Thousands in use. Built to last with heavy, stiff saw blade. Positive safety clutch control; uses power take-off any tractor.
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Hatched and Sold by the Golden Rule



WRITE FOR BIG FREE CATALOG

AND DISCOUNT INFORMATION
Quality chicks of good breeding are your best assurance of EXTRA PROFITS. Backed by 26 years of BALANCED BREEDING Golden Rule chicks are superior for strength, health and livability ... superior for meat and eggs. 100% live delivery. 98% livability GUARANTEED. Is popular breeds. Sexed and cross breed chicks available. DISCOUNTS for prompt orders. Write today for big FREE catalog. 1949 price list and discount information.
GOLDEN RULE HATCHERY, Box 17, Bucyrus, Ohio

NATIONWIDE FRUITS

(Continued from page 59)

uting system and then gently rapping tubes and nozzles while the engine is running. Both the interior and exterior of dusting machines should be kept free of accumulations.

At the end of the season clear water should be run through the pump and then cylinder oil to keep the packing soft and to prevent rust, or grease should be applied at all detachable joints and unions. In taking such precautions, Titus points out that it is best to remove rubber hose connections so they will not deteriorate from contact with the oil.

● Over 100 per cent increase in apple maggot infestation took place the past year in the Kentville area of Nova Scotia, according to A. Buchanan, Kentville's maggot control board supervisor.

The increase seemingly was due to greater maggot populations throughout eastern Canada and northeast apple areas in the United States and to the fact that control recommendations were not strictly adhered to. The short crop in Nova Scotia also probably caused greater concentration of maggots.

Control recommendations in Kentville, in addition to the recommended spray schedule and sanitation methods, include the removal of non-commercial apple trees and wild apple and native hawthorne trees in close proximity to commercial orchards.

PEARS

● In 1945 William E. Vollmer, Jr., of Parkdale, Ore., noticed two blighted trees in his pear orchard. These he promptly removed. But his removal program, according to the *Yakima Herald*, didn't effect a cure, for the following year about 20 trees were afflicted. These he treated by cutting out the blighted portions.

In 1947, 80 per cent of his pear orchard succumbed to the disease three weeks after blossom time, and an adjoining block of Spitzenberg apples was hit. Close observation revealed that over-vigorous trees were afflicted by the disease to far greater extent than trees growing more slowly.

Vollmer immediately changed his cultural program in an effort to reduce the excessive growth. He seeded his orchard to sweet clover and reduced the use of commercial fer-

AMERICAN FRUIT GROWER

SOARING ICE CREAM SALES INCREASE MARKET FOR FRUIT AND NUT CROPS

OF REAL INTEREST TO fruit and nut growers is the increased promotional pace set by the ice cream industry to stimulate greater ice cream gallonage. And with the continuing expansion of ice cream consumption, the fruit and nut grower will gain an ever-increasing market.

The ice cream industry has always provided a stable market for fruits and nuts. The vigorous promotion activities of ice cream manufacturers in behalf of ice cream will establish wider markets.

The real benefits to the fruit and nut grower, as the ice cream industry continues to pursue its planned objective—to build more and more ice cream volume each year—are important, and, as this expansion is realized, the fruit and nut market will gain their proportionate share of the increase season after season. This close alliance of ice cream and fruits and nuts is destined to continue apace—its long-range expansion provides a growing and continuing market for fruits and nuts.

Yours for a greater market for fruits and nuts in the ice cream industry, International Association of Ice Cream Manufacturers, Barr Building, Washington, D. C. (Adv.)

IN THE ORCHARD



Cuts Maintenance Costs!

Jari self-propelled power scythe does the work of 6 men. It is lightweight, well balanced, portable. Cuts weeds and grass right up to your trees. Easy to operate even over rough ground, steep slopes and hard-to-get-at areas.

JARI Power Scythe also:

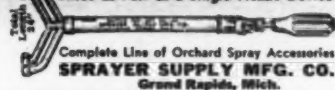
- Cuts under fences
- Cuts next to buildings
- Cuts 2' from ground

WRITE TODAY for more complete information

JARI PRODUCTS, INC.
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New Boyce Double Spray Gun

The Fan Shaped Spray Covers Better and Twice as Fast as a Single Nozzle Device



Complete Line of Orchard Spray Accessories
SPRAYER SUPPLY MFG. CO.
Grand Rapids, Mich.

FEBRUARY, 1949

tilizer by 50 per cent. Pruning of diseased trees consisted only of sucker growth and large cuts when absolutely necessary.

In 1948 only three trees showed infection. So Vollmer plans to continue this cultural program and the summer treatment of blight. This treatment consists of cutting out diseased areas, immediate disinfection of cut surfaces and pruning tools, and prompt removal and burning of prunings.

• The virus disease known as little cherry seems to be caused in different areas in the Northwest by several viruses or virus strains. In Idaho, for example, it is reported that evidence indicates there may be two strains of the virus in that State. In the northern part of the State the little cherry noted was similar to that reported in Washington. In the southern part of the State new symptoms were noted in cherry trees having little cherry virus.

Research work at the Utah Experiment Station has determined the cause of little cherry disease in that State as a transmissible virus known as the Western X virus. However, the little cherry disease has been found only on sweet and sour cherries growing on mazzard rootstock, and it causes affected trees to be less vigorous and a source of constant infection.

But the same virus which causes little cherry disease also causes wilt and decline disease in sweet and sour cherries on mahaleb rootstock and results in the death of the trees. Cherry trees in Utah orchards have been wilting and dying for at least 25 years and this was in the past attributed to rootstock failure.

Western X disease of peach and the red leaf disease of chokecherry, are also caused by the virus, according to the recent Utah findings.

• Stem-feeding leafhoppers are the culprits in the spread of the virus disease known as phony peach, according to Entomologist W. F. Turner of the USDA. Over 1,500,000 peach trees have been destroyed in the southeastern United States since 1929 because of this disease.

Most important of the four species of the insect responsible for transmission of the disease is the cotton sharp-shooter, as it is known in the South. Research is under way to find effective insecticides to combat the carriers.

SHORT CUT TO BETTER BORDEAUX

NICHOLS

TRIANGLE BRAND INSTANT

COPPER SULPHATE

99% + PURE!

◆ **SAVES LABOR** ... Mixes easily in spray tank. Eliminates stock solution, minimizes handling!

◆ **SAVES TIME** ... Dissolves rapidly. No waiting for it to go into solution!

◆ **SAVES MONEY** ... Dissolves thoroughly—no waste or sediment. Gives accurate control and greater safety in your mixtures—thus giving better protection and increased yields.

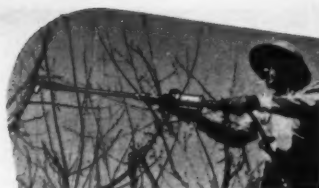
● **FREE** Send postcard today for valuable free booklet—"Bordeaux Mixture—Its Efficient Preparation and Use."

YOUR DEALER can also supply Triangle Brand Copper Sulphate in: LARGE CRYSTALS, SMALL CRYSTALS, GRANULATED and SUPER-FINE for regular Bordeaux Mixtures; also Monohydrated for Copper-Lime dusts. The oldest and the best known brand! Standard for over 50 years.



Throws Out Infra-Red Heat Rays
THE FROST-GUARD! Seasonal development of Michigan State College agricultural engineers for protecting vegetables, flowers, berries and fruit trees against frost damage. Generates infra-red heat rays, warming plants over wide areas. Makes possible earlier planting, earlier to market—higher prices. Eliminates smoke nuisance. Moderately priced. Costs little to operate. Pays for itself in the crops it saves. Write for literature or ask your dealer.

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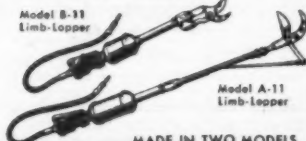
MAKE SHORT WORK OF PRUNING JOBS!

Growers report up to six times more pruning per man with the new air-operated limb-lopper—the pruning tool that cuts limbs up to 1 1/2" thick at the press of a trigger!

Made in models for all deciduous and citrus fruit trees, and for grape vines, berries, etc., the limb-lopper cuts pruning time 50%, and more over tiresome manual operation of ordinary clippers. Small compressors provide air pressure for operating from 1 to 4 limb-loppers—ideal for large acreage where pruning is a costly problem.

Send for Bulletin B illustrating and describing the limb-lopper, and ask us for complete details. WRITE TODAY.

Model B-11
Limb-Lopper



Model A-11
Limb-Lopper

MADE IN TWO MODELS

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UNITED'S B. B. (BLOCK BAKED) CORKBOARD INSULATION



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Assures maximum insulation efficiency at minimum cost. Moisture-resistant, compact, light weight, sanitary, structurally strong, flexible. Write for particulars

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CORK COMPANIES
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Will Save Your Trees

**From Rabbits, Mice, Borer;
Deer, Sheep, Goats—
All Bark-eating Animals.
Prevents Winter Kill —
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Sold in 46 States, Canada and Mexico.

Read the Fifty

Testimonials in our new Folder. Send for free literature, agents' offer. **ORDER TODAY**—\$1 pkg.—25 to 40 trees; 4 lbs. \$8; 12 lbs. \$15. Postage prepaid. 12 qts. ready mixed liquid, by express, not prepaid. \$18.00.

ORCHARDVIEW

Box 91 Noblesville, Ind.

CALENDAR OF COMING MEETINGS AND EXHIBITS

Feb. 3-4—Idaho Horticultural Society annual meeting, Hotel Boise, Boise.—Anton S. Horn, Sec'y, Boise.

Feb. 9-11—Ohio State Horticultural Society annual meeting, Commodore Perry Hotel, Toledo.—C. W. Ellenwood, Sec'y, Wooster.

Feb. 10—Vermont State Horticultural Society annual winter meeting, Barre.—C. H. Blasberg, Sec'y, Burlington.

Feb. 10-12—West Virginia State Horticultural Society 56th annual convention, Martinsburg.—Carroll R. Miller, Sec'y, Martinsburg.

Feb. 15-18—Fruit Growers' Short Course, University of Vermont Department of Horticulture, Burlington.—C. Lyman Calahan, Ext. Hort., Burlington.

Feb. 17-19—Pennsylvania State Horticultural Association annual meeting, State Education Bldg., Harrisburg.—J. U. Ruef, Sec'y, State College.

Feb. 22-23—National Peach Conference, Sheraton-Coronado Hotel, St. Louis, Mo.—Carroll R. Miller, Sec'y, Martinsburg, W. Va.

HOWARD S. FAWCETT

Retired plant pathologist of the University of California, Howard S. Fawcett, 71, died December 12, in Riverside, Calif. Dr. Fawcett discovered the cause of citrus gum and scaly bark diseases and developed means for their control. Virus diseases of citrus, including quick decline, received his attention in recent years. He was author of "Citrus Diseases and Their Control," published in 1926. His extensive travels in Europe, North Africa, and Palestine, where he studied diseases of citrus and dates, and his subsequent travels in Brazil and Argentina, enabled him to make the second edition of his book, in 1936, an exhaustive and useful volume. Reprinted in 1946, the second edition is also being printed in Hebrew, Spanish, and Portuguese. Two chapters in the recently published "The Citrus Industry" were prepared by Dr. Fawcett.

CHARLES H. BURBANK

Pioneer fruit grower of the Wenatchee Valley for 57 years, Charles H. Burbank, 62, of Cashmere, Wash., died December 27.

GROVER C. COCHRAN

Former president of the Indiana Fruit Growers Association, Grover C. Cochran, 64, died January 2, in Oakville, Ind.

BERNAL M. HOPPER

For 44 years a prominent grape grower and rancher in the San Joaquin Valley of California, Bernard M. Hopper, 69, died January 14, in Fresno. Mr. Hopper was general manager of Hopper Bros. 1700-acre valley farming interest. Well-known for his innovations in agricultural practices, he was perhaps most famous for being the first grower to girdle Thompson Seedless grapevines in order to produce larger grapes.

OLIVER S. POWELL

Because he believed his 60 acres of oranges in Glendora, Calif., had been ruined by the recent freeze, Oliver S. Powell, 53, killed himself.

ARCHIE R. SMITH

Orchardist Archie R. Smith, 71, died December 6, in Cedar Grove, Va.

AMERICAN FRUIT GROWER



From where I sit ... by Joe Marsh

It's Your Fight, Too!

Bing Crowley was "beefing" the other day about all that Our Town's doing in the way of sending food and clothes to Europe. Bing felt those struggling democracies should look after themselves.

But most agreed with Judge Cunningham who said: "So long as any family or individual in Europe is holding the line for freedom—against the forces of intolerance—it's common sense, and common decency, to help 'em."

Because that's everybody's fight: To see that individual free-

dom is preserved in every aspect, big or little—whether it's the right to vote, or the right to enjoy a temperate glass of beer or ale with friends.

And from where I sit, no liberty is too small to be overlooked. Because the minute one small freedom is threatened, all the others are in jeopardy—just as the minute one small country loses freedom, all its neighbors are in danger!

Joe Marsh

BREEZES THROUGH
THE TOUGH JOBS



Bredy
GARDEN TRACTOR

- 1½ and 2½ HP models.
- Patented "Front-Block" gives 30% more traction.

A time and work saver the year 'round! Complete line of gardening implements—plus snow plow, lawn mower, air-compressor and other handy Bredy attachments. Let Bredy be your handy man! **WRITE TODAY** for free folder! The Bredy Tractor & Implement Co. BOX 200 SOLON, OHIO

TOWER'S

'FISH BRAND' OILED SUITS and HATS
for spraying protection to outdoor workers



Roomy and of great durability these garments afford the unusual measure of comfort and protection particularly required by spraymen.

Sold by all Good Dealers

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CERTIFIED CULTIVATED BLUEBERRY PLANTS

Wholesale & Retail
15 VARIETIES
Order NOW for Fall or Spring Planting
MONROE FARMS
Box 464, Brown Mills, N. J.
Member of the Blueberry Cooperative Association

WAYNESBORO NURSERIES
VIRGINIA'S LARGEST GROWERS OF FRUIT TREES and BERRY PLANTS. Also extensive line of Ornamental Plant Material.
WAYNESBORO, VIRGINIA
WRITE FOR FREE CATALOG

NEW BULLETINS

Many publications of the state agricultural colleges and experiment stations contain information of interest to fruit growers from other states. Frequently these bulletins may be obtained by writing the Director of Publications of the college or experiment station concerned. USDA bulletins may be obtained by writing the Supt. of Documents, U. S. Govt. Printing Office, Washington 25, D. C. (They do not accept stamps as payment.)

• **Fruit and Nut Varieties for Virginia** (Bul. 172, 1948) Va. Agr. Ext. Service, Blacksburg, describes the varieties suitable for growing in Virginia in relation to climate, soil, and use.

• **Why Fruit Trees Fail to Bear** (No. 172) USDA, 5 cents, is a short, concise leaflet giving various explanations for non-bearing trees.

• **Home Preparation and Preservation of Fruit and Vegetable Juices** (Circ. 194, 1943) N. Y. State Agr. Exp. Station, Geneva, describes and illustrates various methods for preparing juices at home.

• **Growing Grapes in Iowa** (Bul. P90, 1948) Agr. Exp. Station, Ames, briefly describes various phases of grape growing and especially emphasizes pruning.

• **Cranberry Growing in Massachusetts** (Bul. 447, 1948) U. of Mass., Amherst, tells about the best cultural practices for growing cranberries—from planting to harvesting.

• **Pruning the Tree Fruits** (Bul. 392, 1945) Ontario Dept. of Agr., Toronto, illustrates and describes in detail the best pruning methods.

• **Strawberry Diseases in Washington** (Bul. 187, 1948) State Coll. of Wash., Pullman, discusses and illustrates in color the most common diseases affecting strawberries.

• **Nut Tree Culture in Missouri** (Bul. 454, 1942) U. of Mo., Columbia, is a complete discussion of growing nuts in Missouri with several pages on grafting.

• **Do's and Dont's for Delicious** (Ext. Circ. 124, 1948) State Coll. of Wash., Pullman, is a seven-page pamphlet with cartoon-drawings giving some pointers about Delicious apples.

• **Growing Strawberries in Vermont** (Brieflet 555, 1946) U. of Vt., Burlington, suggests varieties and general care for strawberries in that area.



Control RED MITE more completely with PRATT'S SUPERIOR OIL

PRATT'S Superior Oil is a self-emulsifying, 98% highly paraffinic oil that is setting a new standard for dormant and delayed dormant spraying. It is produced as a result of research and development of this type of oil by Dr. P. J. Chapman and associates of the N. Y. Agr. Exp. Station.

Pratt's Superior Oil is more effective at lower dosages than the older type oil sprays. And at the same time it is safer to use on trees after new growth starts. This advantage is important, as it enables the apple grower to use oil in the green tip and delayed dormant stage of bud development with greater safety, making it possible to secure maximum kill of European Red Mite eggs and other insects.

Use Pratt's Superior Oil to secure maximum control of red mite and other pests. It is made by the makers of Scalecide and other sprays for over 40 years. Available at your dealer's in 30 and 55 gallon drums. Write for folder, "Pratt's Superior Oil".

B. G. PRATT CO.

163 River Street, Hackensack, N.J.

FOR ALL ORCHARD GROWERS

KEEP YOUR OWN RAINFALL RECORD AND KNOW YOUR IRRIGATION NEEDS

the VICTOR RAIN-GAGE

Measure up to 6" of rainfall with the Victor Rain-Gage. Simple, easily read. Rustproof... unbreakable. Designed by a meteorologist. Instructions and 11-year record book are included... Your satisfaction guaranteed.

See your dealer. If he can't supply, order direct, giving his name. COD: \$3.40, plus COD charges. For postpaid delivery send check or money order.

VICTOR RAIN-GAGE CO.
LIBERTY BRANCH & WICHITA, KANSAS



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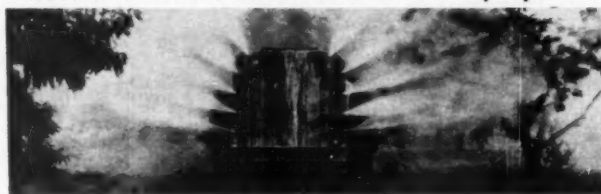
COMBINATION SEED AND FERTILIZER SPREADER

• This dual-purpose implement is the only distributor with a controllable spread (2 feet to 50 feet). The spread can be directed to either side or to center of the row. It is tractor mounted and driven from the tractor take-off. Has a positive auger feed which can be regulated from the tractor seat. Will spread a ton of fertilizer an hour or seed 100 acres a day.

Write for descriptive folder

SKIBBE MFG. CO., BOX 234, EAU CLAIRE, MICH.

Look Into the HALE CENTRIFUGAL Sprayer!



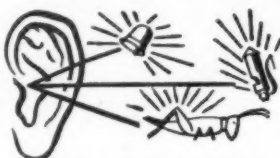
Because it represents a great improvement in the Spray Equipment field, careful buyers are finding it well worthwhile investigating the new HALE CENTRIFUGAL Sprayer pictured in active show. Now available.

Send for information today on this new and thoroughly tested HALE Sprayer with Centrifugal Pump. Capacities up to 50 GPM at 900 lbs. pressure with ample reserve capacity.

Dealer Inquiries Invited.

HALE FIRE PUMP COMPANY
CONSHOHOCKEN, PA.

EAR NOISES?



If you suffer from those miserable ear noises and are Hard of Hearing due to catarrh of the head, write us NOW for proof of the good results our simple home treatment has accomplished for a great many people. NOTHING TO WEAR. Many past 70 report ear noises gone and hearing fine. Send NOW for proof and 30 days trial offer.

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BOOK REVIEWS

• **Fruit Science (\$5.00)** Lippincott Co. by Norman F. Childers. If we were to choose a book-of-the-month for fruit growing, it would be this book by Dr. Childers which has just been published. Divided according to type of fruit for ready reference, it deals thoroughly and interestingly with every phase of fruit growing, from culture to marketing. Emphasis is on the apple since it is "the most widely grown and important deciduous tree fruit." However, the management of other deciduous fruits is thoroughly discussed insofar as it differs from the King of Fruits. Chapters on grapes and brambles complete the deciduous fruit picture.

Fruit Science contains many detailed descriptions of fruit growing operations, such as the packing of fruit, and the author allows no detail for better fruit growing to go unnoticed. It is because of this and because the language is non-technical that the book will prove valuable to those other than students for whom the book was principally written.

Fruit Science is a fine contribution to the fruit industry, and the dedication expresses the spirit in which the book was written: "To the young people of today who will be the leaders of the fruit industry tomorrow."

• The Citrus Industry, Volume II: Production of the Crop (\$10.00)

Univ. of Calif. Press, edited by Leon Dexter Batchelor and Herbert John Webber. Here is the second volume of a comprehensive study of the citrus industry written especially for citrus growers, students, and investigators. It covers nursery methods, choice and use of rootstocks, planting, cultivation, fertilization, cover crops, irrigation, pruning, frost protection, disease and pest control, and related subjects. Several chapters are devoted to virus and fungus diseases, and complete findings of rootstock investigations, carried on for the past 25 years at the California Citrus Experiment Station, are reported here for the first time.

• **Science (\$2.75)** Chemical Pub. Co., by D. W. Hill, is a discussion of science and its relationship to various aspects of living—religion, ethics, politics, education, and leadership.

Orders for any books may be sent to AMERICAN FRUIT GROWER, 1370 Ontario Street, Cleveland, Ohio, with check or money order enclosed.

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Vague Room

FEBRUARY, 1949

STATE NEWS

(Continued from page 55)

DELAWARE—Topics of greatest interest and value to fruit growers were given consideration at the annual Peninsula Horticultural Society meeting on December 2-3 in Dover. These included heating orchards for frost prevention, peach brown rot control, red-banded leaf roller, and apple scab.

The officers elected for 1949 are: H. Milton Hearn, Hebron, Md., president; Edward Kelly, Rising Sun, Del., vice-president; W. Lee Allen, Salisbury, Md., treasurer; and Robert F. Stevens, Newark, Del., secretary. Executive committee: Preston Townsend, Selbyville, Del.; Lloyd Balderston, Colora, Md.; C. Fred Fifer, Wyoming, Del., and Albert Fike, Cordova, Md.

Mr. Townsend retired as president and Dr. T. F. Manns, as secretary. Dr. Manns has been secretary for the past 12 years. Although he retired as professor of plant pathology at the University of Delaware in 1947, he has since taken on the position as disease and insect consultant for the Grocery Store Products Company, West Chester, Pa.—Robert F. Stevens, Sec'y, Newark.

NEW HAMPSHIRE—The 55th annual meeting of the New Hampshire Horticultural Society, held at the Carpenter Hotel in Manchester, January 11-13, was one of the best attended meetings in the history of the society and was a real success.

The highlights of the meetings were topics by Dr. R. H. Roberts, University of Wisconsin; Dr. J. S. Shoemaker, Ontario Agricultural College; Dr. Grant Snyder and Dr. F. W. Southwick, University of Massachusetts; and Porter Taylor, Farm Bureau Federation, Washington, D. C. Panel discussions on orchard soils, pest control, varieties of fruits, diversification, and pickling crops proved to be of real interest and gave the growers an opportunity to take part in the program.

A box of New Hampshire fancy apples was swapped for a banquet ticket. The horticultural society made arrangements with the First National Stores to put on a banquet for the apples exhibited at the meetings, and the event was one that will long be remembered. Over 100 growers packed a box for the occasion, and the fruit really gave a horticultural atmosphere to the program.

My Favorite Apple Dish Contest was another feature of the meetings. The object of the contest was to stimulate the use of fresh apples. The ace apple cooks turned out some delicious pies, sauces, puddings, pickles, cakes, and preserves.

Alfred French of Henniker was elected president of the society; C. R. Cross, of Durham, vice-president; C. E. Leadbeater, of Contoocook, treasurer; and D. R. Batchelder, of Wilton, secretary.—E. J. Rasmussen, Ext. Service, Durham.

OKLAHOMA—As is usually the case, the big attraction at the Oklahoma Pecan Growers Association annual meeting was the pecan show. The center of interest was the seedling contest now going into its fourth year. One hundred fifty samples were entered in the contest and these samples, including data on kernel yield, number of nuts per pound, and the kernels themselves, were on display.

The interesting thing about these entries was that 50 of them shelled out over 50 per cent kernels and not a single one ran lower than 42 per cent. The highest

(Continued on page 66)

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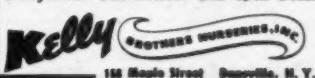
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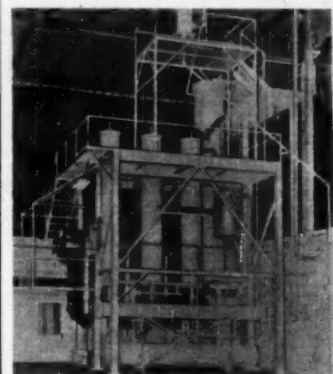
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The Lo-Temp evaporating equipment, with air ejectors above and the supplementary ammonia condenser and receiver below.

modern housewife. In fact, concentrated orange juice is now in greater demand than can be supplied by the Florida industry. Plants are expanding—as at the Lake Wales plant where three more Frick four-cylinder compressors were recently ordered as part of the expansion program—and production has tripled; but it will be sometime before the supply catches up with the demand.

EDUCATIONAL CAMPAIGN

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FEBRUARY, 1949

GREAT GRANDPA MULCHED ORCHARDS 100 YEARS AGO

By PERCY S. BROWN

ORCHARD MULCHING is not new, despite the general feeling that it is a new practice. Although perhaps not employed as widely as might be advisable at present, the record shows that mulching was practiced in New Hampshire 100 years ago.

In his "History of Sanbornton" (New Hampshire) published in 1882, Rev. M. T. Rannels says, "The orchard of Mr. Jeremiah S. Thompson, as being now the largest and most profitable (orchard) in the town, if not in Belknap County, deserves special notice . . . Now the original acre is increased to about five acres, and the number of thrifty trees is not far from two hundred and seventy-five. 'Mulching' is Mr. Thompson's hobby in the way of cultivation, and no grass is taken from the orchard." This report is for a period between 1837, when Mr. Thompson brought "a trunk full of scions" from Roxbury, Mass., and 1852—the year known as "the great mouse year." In that year 125 of the Thompson trees were girdled by mice and had to be replaced.

Though mulching as applied to the apple orchard was considered a success a century ago, the same was not true in grape culture. Rannels reports that Smith and Sanborn, who were winners of "first Premium" on grapes at the State Fair held at Meredith Bridge in 1852, "never mulched for grapes." Their motto, he reports, was "Grapes will not grow in grass."

A DEER REPELLENT WHICH WORKS

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EDITORIAL PAGE



E. G. K. MEISTER
Publisher

H. B. TUKEY
Associate Editor

Fruit Tree Census

ORCHARDING is a long-range business in which decisions made today apply 10, 20, or 30 years hence. The fruit grower must see far into the future if he is to succeed, and while no one can actually forecast the future, a study of trends, particularly in planting, will do much to add any more questions to its already extensive questionnaires.

Of great importance to growers is an accurate census of fruit trees. The National Apple Institute has not been successful in its efforts to obtain government funds for a national variety and age-of-tree survey, and the Census Bureau is reluctant to add any more questions to its already extensive questionnaires.

However, fruit growers have not been entirely without such aid. An excellent variety survey was completed in Kent and Ottawa counties of Michigan with the co-operation of the local horticultural society and county extension offices.

In Virginia the State Horticultural Society is backing plans to complete a census of apple and peach trees by variety and age group. Funds for the Virginia survey were secured under the Research and Marketing Act of 1946.

In Florida the State Department of Agriculture recently completed a survey showing that Florida will have nearly 500,000 acres of bearing citrus trees within five years and that nearly 12,000 acres will come into bearing annually for the next four years. This is important information which should have been available at a much earlier date.

In Washington a state-wide census of all fruit trees and grapevines will be taken this winter—the first since 1935-36. The cost of the Washington survey is estimated at \$20,000, with half of the funds furnished by the State and half by the Federal government.

The success of any survey depends

upon the co-operation of the grower in filling out the census blanks promptly and accurately. The grower who co-operates will be helping himself as well as his industry. Where no survey of their State's fruit acreage is available, growers should start action immediately for a tree census.

In making plans for marketing the crop, in formulating planting plans, in obtaining priorities for government purchasing programs, and in making financial arrangements, nothing can take the place of forecasts made possible by an accurate, up-to-date tree census.

DDT Potency

DDT PROBABLY is a better insecticide today than it was shortly after the war. We have learned a great deal about this new inorganic chemical which has resulted in an improved insecticide with better formulations and more effective application rates.

It is surprising, therefore, to discover that the common housefly apparently has developed resistance to this potent enemy of many insects, as found in investigations by Drs. R. L. Metcalf and Ralph March in California.

While nothing conclusive has as yet been determined, the need for careful observation is indicated. Fruit growers are well aware of the comeback the codling moth can stage, and vigilance is needed to continue to keep infestation within reasonable limits.

Fruit Production at a Glance

	1937-46	1947	1948
Apples bushels	115,054,000	113,041,000	90,288,000
Peaches bushels	66,725,000	82,603,000	67,467,000
Pears bushels	30,222,000	35,312,000	26,190,000
Grapes tons	2,701,000	3,072,000	2,935,100
Plums and Prunes tons (fresh)	723,140	675,000	604,600
Cherries tons	170,000	173,000	201,280
CITRUS			
	1937-46	1947	Jan. 1, Est. 1948-49
Oranges boxes	89,727,000	110,390,000	114,820,000
Grapefruit	47,478,000	61,630,000	56,250,000



Spraying

MAYBE it isn't going to happen. Everybody hopes that it isn't. But then again it may. The pendulum swings right, then back to the left, before it comes to rest. It happened in 1921, with low prices following for more than a decade.

There is no way of telling whether or not we face a period of falling prices, but everybody knows that costs in the fruit business are at an all-time high and that if prices fall, one sure way to meet the challenge is to lower the cost of production.

This is our annual SPRAY issue. In it will be found up-to-the-minute reports on new materials, new equipment, new methods for combating insects and diseases. No one will deny that in the control of pests the fruit industry has made its greatest advances in the past generation. It has been a job of which everyone can be proud. Manufacturers of spray materials and equipment, industrial and public research agencies, pathologists, entomologists, chemists, engineers, horticulturists, county agents, extension specialists—all have had a part.

As a result, most of the insects and diseases are under a reasonable degree of commercial control. But this control is at a price, and the price is high. Some figures show that the cost of spraying has reached half the cost of fruit production. Where two to five sprays were once used, the figure now reaches 14 to 16 or more. On the other hand, in some sections growers say that they have been able to reduce the cost of spraying to five cents a bushel for apples. If so, it represents real progress. What are the prospects of reducing spray costs generally?

The prospects are both immediate and long-range. The immediate future holds new materials which may give good pest control at lower concentrations, with less interference with high yields, and with fewer applications. The possibility of using five parts per million of some of the new active materials is a long way from that terrible mess of 16 pounds of lime and 16 pounds of sulfur in 100 gallons used not so long ago. Then there is the prospect of working out spray schedules which combine and eliminate treatments. Intensive eradication and sanitation measures are possibilities.

At the long-range end of the matter is the breeding of new varieties which are resistant to the most serious and costly pests. There may be a shift to varieties which are already known to be resistant to some pests.

First must come complete and effective control of insects and diseases. After that comes greater efficiency and lower costs. In this direction the industry is thinking and moving.

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For a quick run to town to get groceries . . . feed for the stock . . . or to take the family to a movie—my new GMC pick-up sure does the trick. It handles just like a passenger car with its ball bearing steering and steering column gearshift. And the cab is really comfortable with its wide, deep seat, built-in ventilation system and complete insulation.



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It's easy to handle my GMC in the field . . . even with a full load. Chuck holes don't bother the rugged, "truck-built" axles, frame, springs and double-acting shock absorbers. Even the cab is rubber mounted to stand the twist and strain of field work. And that GMC-built valve-in-head engine has what it takes!



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Hauling a big load is an easy matter for my GMC truck. When I ordered it, I just told my GMC dealer what my hauling job was and he figured out to a "tee" which model GMC was best for me. Sure hit it right on the button, too. Got a sturdy truck-built frame . . . war-proved and improved engine . . . the right axle and transmission ratio . . . everything I need to give me the best truck "farm hand" I've ever had.

"Best Farm Hand I've Ever Had"



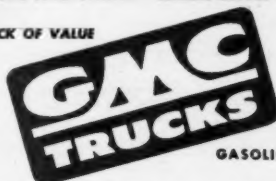
Light-Medium Duty GMCs are outstanding for farm work . . . with rugged, "truck-built" chassis . . . strong and roomy all-steel cabs . . . engines of famous "Army-Workhorse" design.

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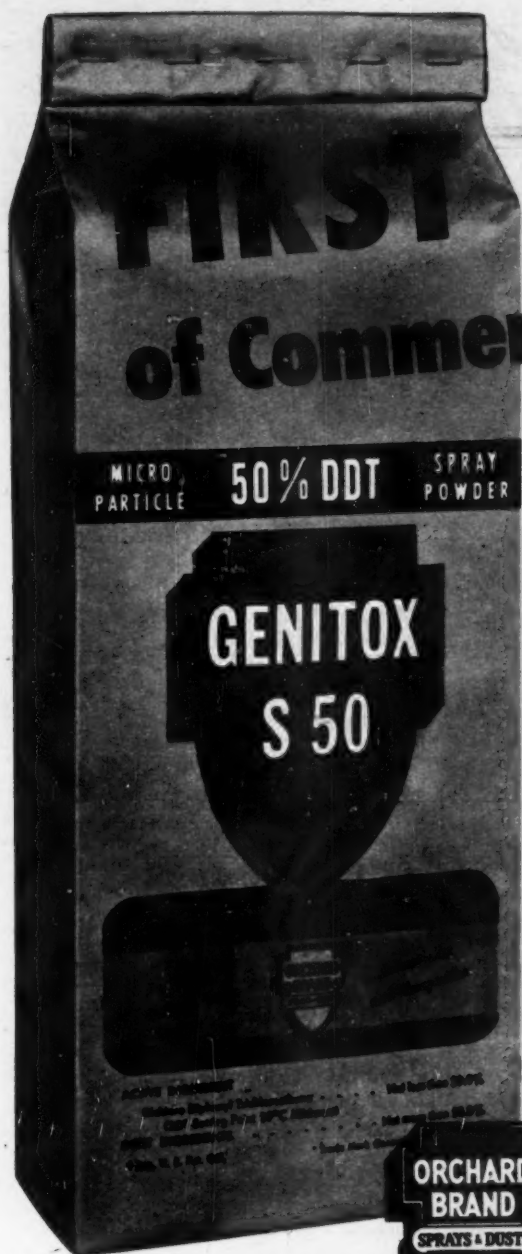
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That's because all General Chemical spray materials are carefully developed through sound research and thorough field investigations. Then they are produced under the most exacting quality-control conditions. This results in the inherent product qualities which mean year-in and year-out dependability. For '49—choose the best: demand General Chemical Orchard Brand.

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